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EARLY-STAGE STRATEGIES IN TWO-SIDED MARKETPLACES

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EARLY-STAGE STRATEGIES IN TWO-SIDED MARKETPLACES

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Dedication

To the entrepreneurs who change the world one start-up at a time, and to my husband who makes my world infinitely better every day

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EARLY-STAGE STRATEGIES IN TWO-SIDED MARKETPLACES

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This study explores the early-stage strategies that support the creation and growth of peer-to-peer marketplaces, a particular type of two-sided marketplace. Prior research on two-sided marketplaces has studied well-established firms and has not produced systematic evidence of the origins of two-sided marketplaces when a critical mass of participants has not yet been recruited. Moreover, its focus on formal economic models and price structures provides only a limited understanding of the early stage strategies that create value, recruit initial participants, and induce their interactions. I address limitations of prior research through an inductive multi-case study of ten peer-to-peer marketplaces. Findings suggest host firms create value and recruit initial participants by promoting and monitoring marketplace participants' conformity with appropriate behaviors. In doing so, they exercise different levels of control (low, average, or high) on two dimensions: a) supply-side heterogeneity and b) cross-side interactions. Considering the interactions of these two dimensions, I propose a typology of nine value-creating activities. Patterns in the sequence in which host firms pursue these activities over time reveal two alternative and "equifinal" paths to promoting participant conformity and ultimately to generating growth. Emergent theory extends literature on resource orchestration to entrepreneurial firms and contributes to research on new forms of organizing.

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CHAPTER 1: INTRODUCTION

In their modern form, firms in two-sided markets operate as intermediaries that use technology to enable direct interactions between interdependent supply-side and demand-side participants, and alleviate bottlenecks for transacting parties (Rochet & Tirole, 2006; Hagiu & Wright, 2014). Their survival and growth depends on inducing the participation of a critical mass of participants, and on capturing value from participant interactions (Armstrong 2006; Eisenmann, Parker and van Alstyne, 2006; Rochet & Tirole, 2003b; 2006). To do so, host firms (i.e. the intermediaries) must first resolve the chicken-and-egg problem inherent in all markets with network externalities, that is the challenge of recruiting initial participants when the value participants derive from transacting within the marketplace depends on the number of other participants already in the network (Katz & Shapiro, 1985). In two-sided marketplaces, this challenge is particularly acute because network externalities exist on both the supply-side and demand-side of the marketplace. Yet, host firms must somehow create value for initial participants and recruit them in the absence of compelling levels of value derived from the size network. This study addresses the lack of systematic evidence and theory on how host firms resolve the chicken-and-egg problem and asks *What are the early-stage strategies host firms pursue to create value, recruit initial participants and induce participants' interactions in two-sided marketplaces?*

Prior research has four limitations in the ways in has attempted to answer this question. First, it assumes host firms create value by establishing a large network of supply-side and demand-side participants, thus lowering participants' search and transaction costs (Armstrong 2006, Caillaud and Jullien 2003, Evans, 2003; Parker and van Alstyne, 2005). Yet, this type of value is not compelling for initial participants when the network is still nascent. Moreover, existing studies focus on established firms transitioning into two-sided markets (e.g. Zhu & Iansiti, 2012), or firms that have already attracted complementors, and recruited initial participants (e.g. Boudreau & Jeppesen, 2014; Eisenmann, Parker & van Alstyne, 2011; Rysman, 2007; Vogelsang, 2010). Established firms benefit from significant levels of resources, which they can use to subsidize participation for both sides. Yet, host firms setting out to build a two-sided marketplace do not have a pre-existing customer base they can leverage to populate the marketplace (e.g. Altman & Tripsas, 2015); are not yet legitimated (Singh, Tucker & House, 1986) as capable intermediaries; and have not yet developed substantial levels of valuable resources and capabilities (Brush, Greene, & Hart, 2001). Together, these arguments highlight the importance of studying the early-stage strategies that create value for initial participants and support the growth of two-sided marketplaces.

Second, prior research on two-sided marketplaces considers price structures, or "the allocation of the total price between the buyer and seller" (Rochet & Tirole, 2006: 647), as the primary, and often only, recruitment mechanism (Bolt & Tieman, 2008; Chen, 2008; Chou et al, 2012; Hagiu, 2006; Weyl, 2010). Initial participants are incentivized to join when host firms subsidize participation for the side with the least incentive to join, and charge the side with the highest incentive to join the marketplace (e.g. Armstrong, 2006; Caillaud & Jullien, 2003; Hagiu, 2009; Rochet & Tirole, 2003b; 2006; Weyl, 2010). This transactional view of marketplaces has been criticized for not having considered a more complete set of strategic decisions and processes, which acknowledge the role of marketplace participants and their interactions in marketplace growth (Gawer, 2014). A few studies have more recently begun to consider how participants impact marketplace growth. Tucker and Zhang (2010), for example, tested potential sellers' willingness to join a marketplace based on whether the host firm advertised who had already joined the marketplace, i.e. sellers or buyers or both. Moreover, Zhu and Iansiti (2012) found that the fit between participants' consumption preferences and the marketplace's offering strengthens network effects and enhances the ability of new entrants to compete in two-sided markets. Lastly, Gawer (2014) has theorized about how different types of participants influence the scope and activities of the host firm. Yet, no studies have examined whether and how host firms take into account different types of marketplace participants or their interactions when building a two-sided marketplace.

Third, studies on two-sided marketplaces are typically based on single cases or formal economic models (e.g. Hagiu & Jullien, 2011; Rysman, 2009; Vogelsang, 2010). But as Gawer (2014) has suggested "most economic models of two-sided markets…do not offer much insight into what determines how or why [marketplaces] would evolve." (1241). Understanding the evolution of two-sided marketplaces begins with understanding their early stages.

Fourth, existing research on two-sided marketplaces has been criticized for lacking conceptual murkiness (Thomas, Autio & Gann, 2014). Video game platforms (e.g. Boudreau & Jeppesen, 2014; Hagiu & Lee, 2011), credit card payment systems (e.g.

Rochet & Tirole, 2003a; Rysman, 2007), operating systems (e.g. Evans, 2003), enterprise software (e.g. Wareham, Fox & Giner, 2014), and more recently peer-to-peer rental services (e.g. Fraiberger & Sundararajan, 2015) are all considered two-sided marketplaces. Theoretical and empirical distinctions among all these two-sided firms remain unaddressed. In peer-to-peer marketplaces, for example, the host is not a piece of hardware and does not require supply-side participants to create technologically compatible products. Yet, we know little about the unique challenges, if any, host firms face in the peer-to-peer context.

Given the lack of empirical evidence and limited theory on the origins of two-sided marketplaces, I conducted a multi-case inductive study suitable for in-depth study of poorly understood phenomena and new theory development (Eisenhardt, 1989). To maintain consistency in theoretical case sampling (Miles & Huberman, 1994), I chose cases that operated as peer-to-peer marketplaces, which enable interactions between individuals and/or independent professionals. Interviews and archival data from ten cases generate insights on the process through which host firms create value, recruit initial participants and manage their interactions.

Findings suggest that in the absence of compelling network effects, host firms signal to potential participants that they can effectively promote and monitor participants' conformity with appropriate behaviors. Conformity implies predictability in behavior. To promote and monitor conformity, host firms exercise different levels of control over their marketplace on two dimensions. The first dimension of control is concerned with managing participant heterogeneity, primarily on the supply side. The second dimension is concerned with governing cross-side interactions, and more specifically with determining the degree to which host firms oversee, referee and influence how, when and under what terms the two sides interact. Each level of control (low, average/balanced, or high) represents a strategy for promoting conformity. By considering the interaction of three levels of control on each of the two dimensions, I find nine types of value-creating activities that concurrently exercise control over supply-side participants and over cross-side interactions. The sequence in which host firms focus their attention and resources on each of these activities over time suggests two alternative but "equifinal" paths for promoting and monitoring conformity.

Broadly, the first path involves transitions from low to high levels of control. Initially, this path focuses on recruiting as many participants and inducing as many interactions as possible. However, low levels of control render the marketplace vulnerable to the risks of non-conformity. Over time, host firms exercise higher levels of control on either one or both dimensions in their efforts to winnow out non-conforming participants. In contrast, the second path begins with balancing low and high levels of control on at least one dimension. Balancing activities aim at recruiting relevant participants and producing quality matches—often at the expense of rapid large-scale growth. Host firms later lessen control on one or both dimensions so as to accelerate the growth of the marketplace. These findings suggest that openness to heterogeneous participants early on will eventually require more direct oversight over their participation so as to ensure conformity. In contrast, restricting heterogeneity early on lessens the need for direct firm oversight or involvement in participants' interactions but eventually requires lessening that control and inviting more heterogeneous participants so as to accelerate the growth of the marketplace.

The two paths provide evidence of alternative processes through which host firms promote and monitor participant conformity, and thus create value for initial participants. They also cast new light on the tradeoffs between different approaches to designing two-sided marketplaces. Specifically, the first path begins with an inclusive and hands-off approach towards managing participant heterogeneity and governing participant interactions, whereas the second one begins with a more exclusive and hands-on approach. Initial approaches are modified as host firms gain insights into participant behavior and integrate them into their efforts to propagate conformity. Both paths leverage initial participants as growth resources, albeit in different ways. The first path harnesses the opportunities of participant heterogeneity which contributes to making as many matches as possible, whereas the second path harnesses the opportunities of homogeneity that leverages shared interests and values and existing trust to make high quality matches.

Findings from this study contribute to research on resource orchestration (Sirmon, Hitt, & Ireland, 2007; Sirmon, Hitt, Ireland & Gilbert, 2011). The prevailing view in the strategy and entrepreneurship literatures advocates resource ownership and control as well as internal resource development as the path to value creation and competitive advantage (Barney, 1991; Sirmon et al, 2007; 2011). In contrast, this study presents an alternative process of resource development, which occurs across firm boundaries in collaboration with external stakeholders. These insights are relevant for studying not only two-sided marketplaces but also firms that seek to induce the collaboration and voluntary contributions of external actors including independent user communities (Felin & Zenger, 2014; Shah, 2006), and even firm-hosted user communities (Jeppesen & Frederiksen, 2006). Lastly, the focus of this study on peer-to-peer marketplaces generates new knowledge about a particular type of marketplace that is enabling the growth of the increasingly prevalent but under-researched phenomenon of the 'sharing economy' (Fraiberger & Sundararajan, 2015; The Economist, 2013).

Chapter 2 discusses in more detail existing research on firms operating in two-sided markets and chapter 3 reports on research methods. In chapter 4, I present my findings, and finally, in chapter 5, I discuss contributions to theory and practice. I present concluding remarks in chapter 6.

CHAPTER 2: LITERATURE REVIEW

Before discussing in depth literature on two-sided marketplaces, I define relevant terms and make both theoretical and empirical distinctions between related constructs.

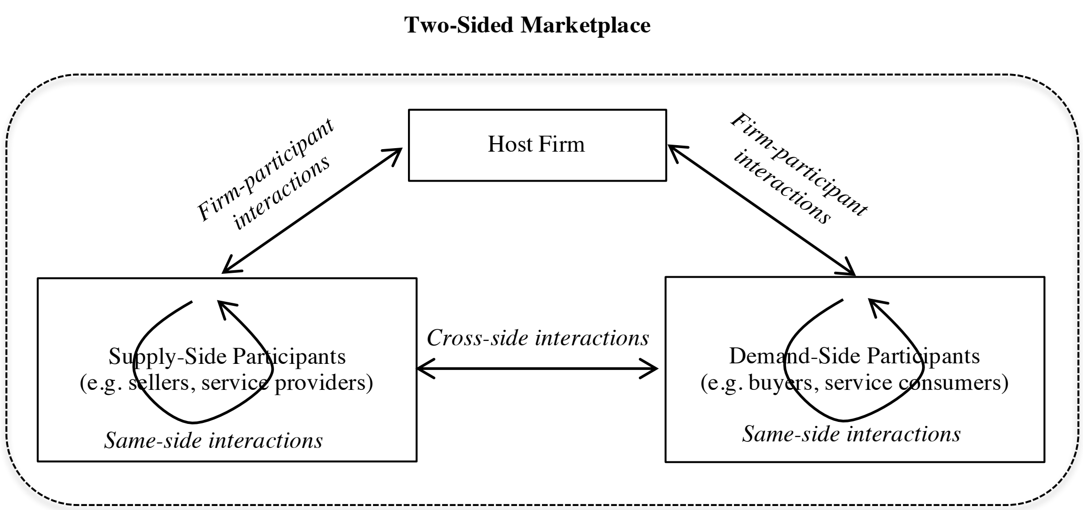
I. DEFINITIONS

Two-Sided Marketplaces and Platforms

In their modern form, two-sided marketplaces are enabled by an underlying technology, a 'platform', which facilitates direct interactions between supply-side and demand-side participants (Thomas et al, 2014). The platform construct has been used loosely in existing research to connote a number of different phenomena including market intermediaries that allow different actors to exchange products or services directly (Rochet & Tirole, 2006) thus alleviating market inefficiencies (Hagiu & Wright, 2014), and technical architecture that promotes a family of compatible products around a technological core (Robertson & Ulrich, 1998).

For clarity, I refer to the market intermediary that develops and uses a particular technology to facilitate interactions between interdependent actors, and thus create a two-sided marketplace as the *host firm* (figure 2.1). I refer to *marketplace participants* as the core participants, i.e. those on the supply side who sell or provide a product/service to participants on the demand side who are either buyers/consumers. I also acknowledge that different interactions exist: between the host firm and each side (firm-participant interactions), between the two sides (cross-side interactions), and among participants within the same side (same-side interactions). It is important to note that two-sided marketplaces enable cross-side interactions, which include but are not limited to transactions (e.g. payment is a transactional interaction whereas messages exchanged between a seller and buyer are a social interaction). A transaction must exist between core participants. Host firms that enable only social interactions (e.g. social media platforms), or only knowledge exchange (e.g. user communities) but no transactions between core participants are not considered in this study to be two-sided marketplaces. Lastly, a *two-sided marketplace* includes the host firm, the core marketplace participants, and the transactional and non-transactional interactions that occur between and among these actors. The focus of this study is on the decisions and actions of host firms.

Figure 2.1: Key Actors and Their Interactions in a Two-Sided Marketplace



Peer-to-Peer Marketplaces

A peer-to-peer marketplace is a type of two-sided marketplace that enables cross-side interactions between individuals and/or independent professionals as opposed to firms. In this context, individual consumers and/or independent professionals may occupy either side of the marketplace or both (Hamari, Sjöklint, & Ukkonen, 2015). Prior research has theorized that 'types of participants' is a relevant dimension for distinguishing marketplaces with different structural characteristics (Gawer, 2014). Specifically, Gawer (2014) has argued that employees or business-level departments participate in internal platforms; assemblers or suppliers participate in supply-chain platforms; and complementors participate in industry platforms. In this study, individuals independent of the firm participate in peer-to-peer marketplaces. Moreover, existing research has studied primarily business-to-consumer and business-to-business marketplaces in which supply side participants have to produce products or services that are technologically compatible with the underlying platform technology. In peer-to-peer marketplaces, however, participants are individual consumers who do not necessarily adhere to particular standards of service, quality or behavior. Even though heterogeneity in consumption preferences is a key challenge in any market with network externalities (Farrell & Saloner, 1985; Simcoe, 2012; Waguespack & Fleming, 2009), in the peer-to-peer context, it is an even more acute challenge because it exists not only the demand-side but also on the supply-side.

Peer-to-peer marketplaces are not only empirically but also theoretically interesting. The peer-to-peer context presents opportunities to study different types of exchanges such as asset rental services (e.g. Airbnb, HomeAway), knowledge exchange services (e.g. Avvo), task-based services (e.g. Dogvacay), and asset ownership transfer (e.g. Etsy). The basis of exchange may influence the activities that a marketplace pursues and relatedly, the process of value creation. Table 2.1 seeks to elucidate distinctions between peer-to-peer marketplaces and the most commonly studied business-to-consumer and business-to-business marketplaces by presenting three distinct categories of marketplaces. In the methods chapter, I build on these categories to construct a theoretically relevant sample of cases.

Next, I draw from the platform economics literature to review prior research on two-sided marketplaces.

II. Platform Economics Research

Platform economics has its roots in network economics but has evolved as a distinct literature that researches technology-enabled market intermediaries, which coordinate a system of interactions among two or more groups of interdependent participants, and capture value from their interactions (Armstrong 2006; Caillaud and Jullien 2003; Evans, 2003; Parker and van Alstyne 2005, Rochet and Tirole 2003b; 2006). This research studies the actions of technology platform owners, i.e. host firms or intermediaries, and those of complementors, i.e. supply-side participants (e.g. Boudreau & Jeppesen, 2014; Gawer & Henderson, 2007). Interdependencies between complementors and consumers imply the presence of indirect network externalities. *Indirect network externalities* exist when demand for a product or service depends on the number of both participating consumers and producers. In contrast, *direct network externalities* exist when demand depends only on the number of other consumers in the network (Katz & Shapiro, 1985; Gupta, Jain & Sawhney, 1999). Interdependency between the actions of consumers and suppliers in two-sided marketplaces exacerbates the early-stage challenge of recruiting initial participants because the growth of the

Table 2.1: Distinctions Between Peer-To-Peer Marketplaces and Other Two-Sided Marketplaces

DIMENSIONS	CONSTITUTIVE ELEMENTS	CATEGORIES OF PEER-TO-PEER MARKETPLACES			CATEGORIES OF B2C/ B2B MARKETPLACES		
		Asset Transfer	**Traditional Services**	**Asset Rental**	**Asset Transfer**	**Traditional Services**	**Asset Rental**
Types of Participants	Firms				✓	✓	✓
	Individuals / independent professionals	✓	✓	✓	✓	✓	✓
Types of Outcomes	Ownership rights transfer	✓			✓		
	Task or knowledge-based service		✓			✓	
	Asset-based service (e.g. rental)			✓			✓
Examples		Etsy, Wallapop	Avvo, Dogvacay, Instacart, TaskRabbit, Uber	Airbnb, RelayRides	Alibaba, Xbox marketplace, iTunes	Kayak	WeWork

supply-side depends not only on the size of the supply side but also the size of the demand side.

By virtue of brokering interactions between two sides, host firms were thought to interfere with transacting parties' bargaining process and thus create monopolies on at least one side of the market (Evans, 2003; U.S. v. Microsoft Corporation, 2001). Unsurprisingly, the market interference mechanism that has received the greatest scholarly interest is price structures, which refer to "the allocation of the total price between the buyer and seller" (Rochet & Tirole, 2006: 647) whereas total price is the amount charged to both sides. The key insight emerging from this literature is that the way host firms allocate the cost of participation between the two sides concurrently influences the willingness of each side to join and transact within the marketplace (Armstrong, 2006; Caillaud & Jullien, 2003; Hagiu, 2009; Rochet & Tirole, 2003b; 2006; Weyl, 2010), and ultimately "profits and economic efficiency as well" (Rochet & Tirole, 2006: 648). Over time, however, scholars have focused less on studying the monopolistic behaviors of host firms and more on the role of price structures in resolving "the celebrated chicken-and-egg problem" of recruiting two or more distinct yet interdependent sides of the market (Rochet & Tirole, 2003b: 990).

Existing research has argued that setting appropriate price structures involves subsidization on at least one side of the marketplace. In other words, host firms charge the side of the marketplace that stands to benefit the most (or derive the most utility) from its participation, and not charge at all the side that stands to benefit the least (Bolt & Tieman, 2008; Chen, 2008; Hagiu, 2006; Weyl, 2010). An underlying assumption in this research is that subsidizing participation is an adequate recruitment incentive for initial participants (Armstrong, 2006; Hagiu, 2006; 2009; Rochet & Tirole, 2002; Rysman, 2009; Sun & Tse, 2007; Weyl, 2010).

Even though theories of pricing strategies provide a parsimonious theory for how firms in two-sided markets might resolve the chicken-and-egg problem, the assumption that transactional efficiencies and subsidization provide a large enough incentive for the two sides to come onboard remains unquestioned. Lowering participants' search and transaction costs (Armstrong 2006; Caillaud and Jullien 2003; Evans, 2003; Parker and van Alstyne 2005; Rochet and Tirole 2003b; 2006) is only one aspect of value host firms create for marketplace participants. Moreover, this type of value is only possible if the network of participants is large enough. Yet, these long-held assumptions have been called into question with more recent work that theorizes some intermediaries purposefully increase participants' search costs by diverting users towards higher profit options (sellers, or stores) instead of making the most efficient match between buyers and sellers (Hagiu & Jullien, 2011). Their argument raises the question of what other types of mechanisms, above and beyond making transactions more efficient, host firms pursue to create value. Moreover, assuming subsidies are an adequate recruitment mechanism overlooks a whole host of other activities that firms might pursue in conjunction with subsidization.

Prior literature has also neglected to examine systematically the role of different participants in marketplace strategy. Participants and their preferences present a critical challenge for all networked firms trying to achieve demand economies of scale (Gupta et al, 1999) such as when diffusing technological standards (Simcoe, 2012; Waguespack & Fleming, 2009). In two-sided markets, participant preferences have also been acknowledged to influence the strength of indirect network effects (Zhu & Iansiti, 2012). More specifically, Zhu and Iansiti (2012) have shown that demand heterogeneity, defined as the variance in consumer preferences, impacts the 'quality' of the customer base, i.e. the strength of the match between a consumer's preference and the focal firm's offering. In turn, a high quality customer base increased the likelihood an entrant successfully competed with incumbents for the same customer segment. Relatedly, Parker and van Alstyne (2005) have suggested that rather than viewing heterogeneity in participant preferences as a challenge, host firms might leverage it as an opportunity to match products or services to heterogeneous consumer preferences, thus capturing greater value. Additionally, Gawer (2014) has suggested that host firms with different scope and different activities have different types of participants. Taken together, these studies point to the important, but under-theorized and under-researched, role participants may play in marketplace strategy.

Lastly, existing research on two-sided marketplaces is based on formal economic models that estimate the number of participants or the volume of transactions as a function of participants' utility, cost of participation, and multi-homing options (Caillaud & Jullien, 2003; Rochet & Tirole, 2003). But "most economic models of two-sided markets…do not offer much insight into what determines how or why [marketplaces] would evolve." (Gawer, 2014: 1241). Less frequently, scholars use illustrative examples or draw from single cases of well-established firms. Established firms have already validated and refined their technology, developed partnering capabilities, and recruited a critical mass of participants (e.g. Boudreau & Jeppesen, 2014; Eisenmann et al, 2011; Rysman 2007; Vogelsang, 2010). Similarly, product firms transitioning from 'one-sided' to two-sided models leverage existing customers and partners to populate a two-sided marketplace (Altman & Tripsas, 2015). These empirical settings are fit for understanding how firms with access to abundant resources, including customers, can strengthen network effects. They are not necessarily relevant to early-stage host firms setting out to build a marketplace from scratch without significant levels of resources, legitimacy, or pre-existing customers. An additional limitation of prior research lies in the liberal use of the platform construct (Thomas et al, 2014). Product platforms, marketplaces, industry ecosystems and peer-to-peer marketplaces are assumed to be part of the same category and driven by the same activities. With the exception of Thomas et al's (2014) categorization of the platform literature into different streams, and Gawer's (2014) theorizing around platforms with different structures and scopes, research on platforms still lacks conceptual clarity.

This study builds on prior research on two-sided marketplaces and addresses the aforementioned oversights by exploring the early-stage value creation process in ten peer-to-peer marketplaces, a particular type of two-sided marketplace. Inductive inquiry facilitates the development of new theory on early-stage strategies in two-sided marketplaces.

Summary. In their modern form, two-sided marketplaces use technology, or a 'platform', to facilitate direct interactions—including but not limited to transactions—

between supply-side and demand-side participants. Existing research on two-sided marketplaces has focused primarily on price structures to argue that subsidization is an adequate recruitment mechanism, and on well-established host firms, which either have pre-existing customers or abundant resources to subsidize early-stage participation for both sides. This work presents an incomplete view of how specifically host firms create value and recruit initial participants in the absence of a critical mass of other participants. Scholars have more recently highlighted the importance of studying other aspects of marketplace strategy and using more diverse methods so as to develop a more nuanced understanding of the evolution of two-sided marketplaces. Through this study, I address these limitations and ask *What are the early-stage strategies host firms pursue to create value, recruit initial participants and induce participants' interactions in two-sided marketplaces?*

CHAPTER 3: METHODS

I. RESEARCH DESIGN

Given limited theory and evidence on the origins of two-sided marketplaces and in particular, the strategies that host firms pursue to recruit initial marketplace participants, I carried out an inductive multi-case study suitable for building new theory (Eisenhardt, 1989; Yin, 1994). Inductive inquiry takes a critical stance towards assumptions in existing research, thereby creating opportunities to identify theoretically relevant concepts that cannot be specified a priori (Eisenhardt, 1989; Eisenhardt & Graebner, 2007). Multiple cases allow for comparative analysis and for confirming or disconfirming patterns across cases, thus facilitating the development of more generalizable and robust theory "more deeply grounded in varied empirical evidence" than theory developed from single cases (Eisenhardt & Graebner, 2007: 27).

I first collected observational data and pilot interview data on host firms in the process of building two-sided marketplaces. Using the categories of marketplaces in table 2.1, I collected pilot data from host firms building 'asset transfer', 'traditional services' or 'asset rental' marketplaces in both the peer-to-peer, or business-to-consumer/business-to-business context. This sampling approach strengthened external validity (Cook & Campbell, 1976).

II. Data and Data Collection

Pilot Data

Theory building from cases draws from theoretical sampling as opposed to random sampling that allows observation of the phenomenon of interest (Eisenhardt & Graebner, 2007). As is typical of theory-building research based on qualitative data, theoretical sampling is often guided by findings from pilot data analysis that elucidates important aspects of the phenomenon (Suddaby, 2006). Pilot data were first collected through observations of three conference sessions during the South by Southwest Interactive conference in Austin, Texas in 2013 and 2014 (table 3.1). The Interactive portion of the South by Southwest conference focuses on various aspects of technology firms and particularly start-ups. Presenters in the observed sessions included founders and other senior members of firms building peer-to-peer marketplaces. A small number of two-sided firms that did not mediate a transaction are labeled 'other two-sided' in tables 3.1 and 3.2. Following these observations, I also carried out twenty pilot interviews with sixteen two-sided marketplaces in 2014 and 2015 (table 3.2).

The goals of the pilot study were to gain insight into early-stage actions of host firms that would guide subsequent case sampling, and construct a semi-structured interview questionnaire (in appendix).

Table 3.1: Pilot Data Collected - Observations

HOST FIRM	OBSERVATION EVENT	PARTICIPANT ROLES	INFORMANTS	CATEGORY
Lyft	SxSW Interactive 2013 – "The Future of Transportation"	Drivers and passengers	Founder	P2P Services
Wheelz		Drivers and passengers	Founder	P2P Services
Etsy	SxSW Interactive 2014 – "Nanosize Me: The Currency of Sharing"	Sellers and buyers of handmade crafts	Policy Director	P2P asset transfer
Feastly		Chefs and guests	Founder	P2P services
HomeAway		Home owners and renters	VP of Strategy	P2P asset rental
ThreadUP		Sellers and buyers of used clothing	Chief Marketing Officer	P2P asset transfer
Airbnb	SxSW Interactive 2014 – "Structuring Community During Exponential Growth"	Home owners and renters	Head of Community Development	P2P asset rental
Kickstarter		Individual investors and entrepreneurs	Community Strategist	B2C services
Soundcloud		Musicians and consumers	Community Evangelist	Other two-sided

Table 3.2: Pilot Data Collected - Interviews

HOST FIRM (PSEUDONYM)	PARTICIPANT ROLES	INFORMANTS	# OF I/VIEWS	CATEGORY
ABTesters	Web developers and businesses	Co-founder/CEO	1	B2C services
BlogMarketing	Bloggers and retailers	Founder/CEO	1	B2C services
CoachAccess	Sports coaches and consumers	Founder/CEO	2	P2P services
CivilSolutions	Individuals and non-profits	Founder/CEO	2	Other two-sided
DentalTalent	Dentists and dental hygienists	Co-founders (2)	1	B2C services
EngineTalent	Hardware engineers and businesses	Co-founders (2)	3	B2B services
Ensure	Insurance brokers and underwriters	UX Designer	1	B2B services
U-Fix-It	Home material retailers and homeowners	Founder	1	B2C asset transfer
MagDiscover	Publishers and readers	Founder/CEO	1	B2C services
Marina Rentals	Marinas owners and charter businesses	Chief Operating Officer	1	B2C services
Off The Path	Locals and travelers	Founder/CEO	1	Other two-sided
Office Space	Real estate owners and businesses	VP of Business Development	1	B2B asset rental
E-Coupons	Retailers and consumers	Head of Strategy	1	B2C services
StayTogether	Home owners and travelers	Product Marketing Manager	1	P2P asset rental
TravelAnywhere	Home owners and travelers	Community Team Manager	1	P2P asset rental
ToolAddicts	Tool owners and renters	Founder	1	P2P asset rental
Total			**20**	

Case Data

Theoretical Sampling. Case data were collected on host firms building peer-to-peer marketplaces. Cases were selected so that each category of marketplace (asset rental, traditional services, and asset rental services) was represented in the sample at least twice. This theoretical sampling approach sought to maintain consistency in how cases were selected (Miles & Huberman, 1994), thus addressing inconsistent sampling approaches in prior studies of two-sided marketplaces. By sampling across different categories of marketplaces, I also wanted to ensure that a more complete set of actions would be observable. Case sampling also took into account the stage of the marketplace. Cases were included only if they were still in the process of generating significant network effects. This characteristic was first identified independently based on when the host firm had launched. The extent to which these firms were still trying "to make it" was confirmed in the first interview. By capturing cases before they had generated large-scale network effects, I reduced informants' retrospective bias by capturing their accounts as close to the launch as possible. Repeated interviews carried over time complement retrospective accounts and captured informants' thoughts, decisions and actions as they unfolded.

Data sources. Data were collected from five sources: 1) semi-structured interviews with founders, their teams, and whenever possible their advisors and investors, 2) publicly available archival data including websites, social media feeds, and blogs; 3) company archives; 4) informal follow ups through emails; and 5) observations of two founder meet-up events which several cases in my sample sampled attended.

The primary sources of data were semi-structured interviews with founders, co-founders, founding team members and other key decisions makers such as board members and investors. To capture the evolution of strategy, I carried out interviews every six to eight weeks. Longitudinal interviews allowed for following up with informants' prior statements about future plans and open-ended items, thereby minimizing recollection bias. Tables 3.3 and 3.4 summarize the interview, archival and observational data collected. My final case sample included ten start-ups and forty-three interviews for a total of fifty-eight recorded hours. All interviews were recorded with participants' consent and transcribed into text. Company and informant names have been masked to protect informants' identity.

On average, interviews ranged between half hour and two and a half hours. The average interview duration was seventy-five minutes. Interviews were semi-structured, i.e. general interview questions initiated the conversation but allowed informants to focus on issues most salient to them. Follow up questions sought elaboration, clarification and in-depth discussion of frequently discussed issues and challenges. Initial interviews focused on the founders' motivation for founding, milestones achieved or missed, and initial challenges including website launch, founding team composition, first participants, funding milestones, and technology evolution.

Prior to the first interview, I familiarized myself with the marketplace registering as a participant and initiating a transaction. I then noted my observations of technological

Table 3.3: Case Data

HOST FIRM (PSEUDONYM)	MARKETPLACE CATEGORY	PARTICIPANT ROLES	BETA SITE LAUNCH	1ST I/VIEW	INFORMANTS	# OF I/VIEWS	# OF I/VIEW HOURS
ALL ABOARD	P2P asset rental: boat rental	Boat owners and boat renters	03/2015	08/2015	Founder	2	3.5
BUOYANT	P2P asset rental: boat rental	Boat owners and boat renters	03/2013	07/2015	Dir. of Business Development	3	1.5
GEAR UP	P2P asset transfer: triathlon gear	Triathlon gear sellers and buyers	08/2014	06/2014	Founder, Board Member, Product Manager, Community Outreach Manager, Developer	8	8
GRASSHOPPERS	P2P services: lawn care	Lawn care professionals and home owners	03/2014	08/2015	Founder	6	12
HUNTLERZ	P2P services: hunting leasing	Land owners/hunting trip outfitters and hunters	10/2012	08/2015	Founder, Co-Founder	4	6
MATERIALZ	P2P asset transfer: construction material	Independent building contractors and homeowners	12/2014	08/2015	Founder	3	5.5
PI SOCIETY	P2P services: math tutoring	Math tutors and students	08/2013	08/2015	Founder	4	5.5
PRINT-IN-3D	P2P services: 3D printing	3D printer owners and consumers	02/2013	07/2015	Founder	2	2.5
SHIP-N-GO	P2P services: shipping	Drivers and shippers	02/2014	03/2015	Founder, Investors, Advisor	7	9
SPOKES	P2P asset rental: bike rental	Bike owners and renters	04/2013	07/2015	Chief Marketing Officer, Marketing Manager	4	4.5
Total						**43**	**58**

Table 3.4: Case Archival Data

HOST FIRM (PSEUDONYM)	PRESS RELEASES	NEWSLETTERS	PRESS ARTICLES	PITCH DECKS	EMAIL UPDATES	WEBSITE ARCHIVES	TWEETS	OTHER DATA
ALL ABOARD	-	-	19	15	3	40	168	Mobile app designs, recruitment emails (23)
BUOYANT	3	7	154	-	-	99	2456	
GEAR UP	-	10	2	2	2	69	3187	Biz plan (1), event photo (1), blog posts (8), meeting observation (1)
GRASSHOPPERS	-	-	-	1	4	4	-	Marketing collateral, meeting observation (1)
HUNTLERZ	-	3	-	-	2	70	200	Lead generation test archive, meeting observation (1)
MATERIALZ	-	-	-	-	1	14	103	Mobile app designs
PI SOCIETY	-	-	4	1	-	17	1922	Video content (100), magazine (1), List of speaking engagements
PRINT-IN-3D	-	-	15	-	-	157	135	'Community' forum archive, meeting observation (1)
SHIP-N-GO	23	-	4	-	-	168	406	Blog posts (207), e-book (1), participant conversations (2866), meeting observation (1)
SPOKES	15	-	11	-	-	258	2364	Media interviews (2), company survey report (1), participant conversations (12908), meeting observation (1)
Total	**41**	**20**	**209**	**19**	**12**	**896**	**10,941**	

features, pricing and terms of service and used those notes to ask informants questions about the evolution of different aspects of the marketplace. During interviews, I first explained to informants my interest in understanding specific actions and decisions they had taken to grow the marketplace. Subsequently, I asked them to describe their motivation for founding and the evolution of their business from idea inception to the time of the interview. During this process, I guided them through a chronological sequence of events, capturing milestones, dates, facts, and contributors. I also asked informants to discuss specific actions that helped or hindered the growth of the marketplace, and noted plans to change, test, or pursue particular paths in the future. I followed up on the progress of these plans and other open-ended items in subsequent interviews, noting actions taken or not taken, new information, and lessons learned. This approach allowed me to track growth issues and capture key activities and actions as they unfolded over time. I also tracked the evolution of resources including team members, number of participants on each side of the marketplace, funding, and revenue numbers. However, not all cases were willing to disclose this information. Lastly, I sought clarification on industry-specific or technical terms with which I lacked familiarity. As I carried out new rounds of interviews, I checked my own understanding of prior events, and garnered informants' reactions to themes that emerged from each of my analyses.

Informants' accounts were corroborated through a variety of archival data and in a few instances, with observations of meetings and meet-up events among several of the founders. Most archival data were publicly available such as website archives, company and founder blogs, social media accounts, press releases, email newsletters, investment platform company profiles such as AngelList and CrunchBase, and founders' LinkedIn profiles. In three cases, I was able to obtain company archives of marketing and customer service emails (All Aboard case), as well as archives of messages exchanged between supply-side and demand-side participants (Ship-N-Go and Spokes cases). Internal company archives were particularly useful in corroborating informants' accounts.

III. Data Analysis

Developing new theory requires intimate knowledge of the data and iterative comparisons between emerging patterns and existing research (Glaser & Strauss 1967). In this process, researchers take a critical stance towards a priori assumptions in existing research and seek to identify new, theoretically relevant concepts that cannot be specified a priori, eventually generating propositions about connections between concepts (Eisenhardt, 1989; Eisenhardt & Graebner, 2007).

Following this approach, I began my analysis writing case histories using interview data first and triangulating informants' accounts with archival data whenever possible (Eisenhardt, 1989; Yin, 1994). I also verified facts with founders and checked my understanding of events as I carried out repeated rounds of interviews. To facilitate subsequent case comparisons, I organized case histories in the following sections: a) offering, value proposition and vision; b) launch, prototype and early milestones; c) technology evolution; d) geographic focus; e) resource evolution (incubation, funding, team members, revenue); f) initial participants participant growth; g) pricing structure; h) growth/progress metrics; i) community; j) insurance, certification, trust; k) partners/acquirers. Some of these sections were identified at the onset of analysis whereas others emerged from recurring topics discussed during interviews.

I began to construct the case chronologies and identify emergent themes while I was collecting data. I summarized key observations and noted repeated themes for each case. This approach allowed me to identify early themes that merited more discussion and in-depth exploration in subsequent interviews (Eisenhardt, 1989). After completing all case histories, I created a visual representation of the evolution of each marketplace, noting specific actions, and their connections to recruiting or managing a particular side (i.e. supply or demand or both). This mapping also allowed me to identify shifts in attention on specific participants or sides of the marketplaces. Emerging from this analysis was the observation that firms focused attention first on recruiting the supply rather than the demand side, and on governing how interactions occurred.

Next, I carried out cross-case analyses looking for similarities in concepts and themes across cases (Eisenhardt & Graebner, 2007). I paid particular attention to challenges, whether and how these challenges were overcome, the learning that emerged from this process, the problems that remained unresolved and the plans to solve these problems in the future. In doing so, I went back to the text, assigning codes to sections of text using terms that remained true to the informants' use of language towards more abstract codes until the majority of observations were classified into theoretically relevant categories, or themes (Boyatzis, 1998; Headland, Pike, & Harris, 1990). Tables with quotes corresponding to each theme facilitated the comparison of themes across cases (Miles & Huberman, 1994). Cross-case comparisons revealed two dimensions of the marketplaces host firms tried to control as well as a number of related activities. Once I gathered all supporting evidence, I arrived at a clear conceptual definition of two dimensions of control, and nine key activities. I then carried out another round of analysis using a process lens "that explicitly incorporates temporal progressions of activities as elements of explanation and understanding" (Langley, Smallman & Tsoukas, 2013: 1). In doing so, I discovered host firms were clustered in two groups within which they exhibited similarities but across which they differed. Each cluster of firms pursued an alternative but "equifinal" path for promoting and monitoring conformity, ultimately creating value, recruiting initial participants and growing their marketplaces. I discuss these findings next.

CHAPTER 4: FINDINGS

As previously discussed, prior research has not adequately explained how host firms create value and recruit early-stage participants in two-sided markets (e.g. Armstrong 2006; Eisenmann et al, 2006; Rochet & Tirole, 2003b; 2006). Previously identified strategies assume transactional efficiencies are the primary source of value for initial participants, and subsidizing the cost of participation is an adequate recruitment mechanism (e.g. Bolt & Tieman, 2008; Hagiu, 2006; Rochet & Tirole, 2006; Sun & Tse, 2007). This transactional view of marketplaces provides an incomplete picture of early-stage strategies that help to recruit initial participants and coordinate their interactions in two-sided marketplaces. Moreover, the focus on pricing as well the use of formal economic models has produced little theory or systematic evidence of how specifically participants are considered in marketplace strategy (Gawer, 2014). To address these limitations, I carried out an inductive study of early-stage strategies in ten peer-to-peer marketplaces—a particular type of firm operating in two-sided markets.

Findings from this study are consistent with the claim of prior research that host firms set prices in such way that one side's cost of participation is subsidized (e.g. Bolt & Tieman, 2008; Chen, 2008; Hagiu, 2006; Weyl, 2010). Host firms in this study charged one side of the marketplace a transaction or membership fee, and the other side no or lower fees (table 4.1). Moreover, all cases except Pi Society, which postponed any fees until a future date, charged their members fees since the very first transaction. All cases except HuntlerZ maintained the same price levels and structures from the time they launched their beta site to the end of this study's observation period. In other words, the presence of any fees charged for participants at launch in the absence of a critical mass of participants does not explain why host firms were able to not only recruit initial participants but also capture value from the very first transaction. Once again, the question emerged about how host firms created value and convinced initial participants to join a nascent marketplace.

In the context of peer-to-peer marketplaces, the early-stage value creation entailed host firms signaling to potential participants that conformity would prevail and the risks

Table 4.1: Price Structures

CASE	TYPE OF FEE	SUPPLY-SIDE FEES	DEMAND-SIDE FEES
ALL ABOARD	Transaction	10%	-
BUOYANT	Transaction	35% with company insurance or 5% with own insurance	10%
SHIP-N-GO	Transaction	-	6.76% - 15.04% or minimum fee of $45
MATERIALZ	Transaction	10%	-
HUNTLERZ	Membership	-	$30/month or $150/year
PRINT-IN-3D	Transaction	-	20%
PI SOCIETY	N/A	-	-
GRASSHOPPERS	Transaction	-	$21.99/yard
GEAR UP	Transaction	7%	-
SPOKES	Transaction	17.50%	12.50%

of non-conformity would be managed. When coordinating interactions among individuals who would not necessarily adhere to particular standards of quality, and possess relevant knowledge or experience, host firms faced the challenge of ensuring that the behaviors participants exhibited in the marketplace aligned with host firm expectations of behaviors that would create value for other participants. In turn, conformity would lessen the risk of participation for new participants. As a result, host firms had to find ways to signal to potential participants that behavioral conformity would be sufficiently promoted and monitored.

To promote and monitor conformity, host firms focused their attention and resources on managing two aspects of their marketplace: a) initial participants' heterogeneity based on their knowledge, skills, asset ownership as well as personal values and interests; and b) cross-side interactions including, but not limited to, transactions. Managing heterogeneity of participants on either side of the marketplace entailed decisions about who should be recruited and how. Early-stage efforts were primarily focused on managing supply heterogeneity. Managing cross-side interactions entailed decisions about how interactions should be structured, influenced and refereed so that transactions and information exchange between the two sides were more likely to occur. In governing cross-side interactions, host firms determined their level of involvement in how how, when, and under what conditions participants interacted.

Managing participant heterogeneity and *governing cross-side interactions* were two distinct dimensions of control for promoting and monitoring participants' conformity with appropriate behaviors. In the next section of this chapter, I consider the implications of participants' behavioral conformity for early-stage value creation. In section II, I discuss in more detail the two aforementioned dimensions of control. In section III, I induce a typology of activities, or processes, that emerge from considering the concurrent use of both types of control. Lastly, in section IV, I take a dynamic perspective and present how each case pursued these activities over time. Temporal patterns reveal two alternative paths host firms pursued to create value for initial participants in the absence of large-scale network effects.

I. VALUE CREATION AND PARTICIPANT CONFORMITY

Findings suggest that ensuring participant conformity with expected behaviors was a critical challenge host firms had to resolve so as to convince initial participants to join the marketplace. A founder of several two-sided marketplaces, and board member at Gear Up, a marketplace for buying and selling pre-owned triathlon gear, explained how this challenge had implications for scaling a peer-to-peer marketplace.

> "The most fundable businesses are B-to-B because the unknown of humankind is somewhat solved if you can say "there's a market that meets certain levels of criteria and I've gotten in a small segment of those". You have validated something that is measurable to a degree that I understand how it could grow. Peer-to-peer, the fickleness of humans, is a more challenging model, but it's also exponentially more scalable and therefore more valuable if you can prove it." (Gear Up Board Member, personal interview, August 2015)

This study focused on peer-to-peer marketplaces precisely because it became evident from pilot data analysis that peer-to-peer marketplaces faced the challenge of managing the "fickleness of humans" or the lack of predictability that emerged from coordinating and managing large numbers of individuals on both sides of the marketplace. I

In contrast to business-to-consumer or business-to-business marketplaces that involve a piece of hardware or software and supply participants conform to technical requirements (e.g. software developed by complementors is made compatible with a Kindle or an iOS device), in peer-to-peer marketplaces, conformity was behavioral. Conformity appeared as completing profiles, providing detailed product/service descriptions, valid payment and contact information, and treating others with care. Non-conforming behavior took the form of transacting parties defrauding one another; transactions initiated but completed outside the marketplace; lack of responsiveness to questions; lack of punctuality or friendliness when delivering a service; use of inappropriate language when communicating; or simply incomplete profiles. Table 4.2 summarizes how participant conformity and non-conformity appeared in the data. The key insight emerging from the table below is that behavioral conformity related to the transaction (e.g. payment information and product description) as well as to the transacting parties' identity and behavior (e.g. friendliness, and language use)

Table 4.2: Instantiations of Conformity and Non-Conformity

CONFORMITY	**NON-CONFORMITY**
Complete profiles	Incomplete profiles
Detailed product/service descriptions	Vague product/service descriptions
Valid contact and payment information	Fraudulent contact and payment information
Transactions completed in the marketplace	Transactions initiated but completed outside the marketplace
Responsive to questions	Unresponsive to questions
Punctual, reliable	No-show, tardy
Friendly, social	Unfriendly, transactional
Use of appropriate language	Use of inappropriate language

High levels of heterogeneity implied high variance in participant behavior, which in turn impeded predictability of participant behavior. Despite its detrimental effects to both participants and host firms, high levels of heterogeneity were not always avoided. In fact, heterogeneity and the likelihood of non-conformity was perceived useful in garnering information about how to further promote conformity and create value. Specifically, divergence from expected behaviors allowed host firms to gain insight into participant behavior and fine-tune particular aspects of the marketplace (e.g. information and many flow management functionality) so as to induce participation. The founder of HuntlerZ, a hunting marketplace connecting landowners and hunting trip outfitters with individuals hunting on private land, made decisions on technology that would increase participation despite those decisions not adhering to best practices or the most cutting edge technological standards. Promoting conformity in the HuntlerZ case was concerned with requiring participants to conform to behaviors that did not depart significantly from their existing levels of comfort with technology.

> “Things that are today's standards, or cutting edge, in terms of user experience, we don't always necessarily adopt. Let's say on mobile, my team wanted to use a “hamburger” menu. It's the little 3 lines on a mobile platform that most tech savvy users know that that's how you get to pull out the menu. Whereas I would say our audience is not as web savvy. They don't know what that button does so we try to be 2 years ago in terms of web UX. Instead of having a “hamburger” menu with 3 lines, it will just say "menu" or "find a hunt" or "post a hunt." (HuntlerZ founder, personal interview, August 2015).

Similarly, the founder of Print-In-3D, a marketplace connecting 3D printer owners with individuals looking to print 3D parts explained that the insights Print-In-3D had gained over time about the needs of its early participants helped introduce changes that facilitated the firm’s growth. Implied in the quote below is Print-In-3D’s efforts to promote conformity on the supply side by taking control over certain aspects of the interaction between the two sides and making outcomes more predictable for the demand side.

> "What we found is that people just wanted a 3D printed part. They didn't care about all the different service offerings. They didn't care about who it was that was building it. They had a very singular need, and so all this superfluous steps and options out there were just decreasing our conversion rate and our cut. By bringing that all into one, basically one step, we are able to have a profound impact on our conversion rate and also take a larger percentage of the order." (Print-In-3D founder, personal interview, December 2015)

Although promoting and monitoring conformity was a critical aspect of value creation for all cases, some host firms began to promote and monitor it more strictly than others. Regardless of which approach host firms adopted early on, promoting and monitoring conformity appeared to be a capability host firms developed over time as they learned how different types of control facilitated or impeded conformity.

II. Dimensions of Control for Promoting and Monitoring Behavioral Conformity

As already discussed, the value creation process in early-stage two-sided marketplaces was concerned with signaling to potential participants that host firms could ensure participants' behavioral conformity with appropriate behaviors. Doing so involved balancing the needs of the host firm for consistent and appropriate behaviors with participants' pre-existing behaviors. This balancing act ultimately sought to minimize initial participants' effort to join and transact within a marketplace and required exercising different levels of control on two dimensions: a) participant heterogeneity, primarily on the supply side and b) cross-side interactions. Managing participant heterogeneity sough to control to different degrees the types of participants allowed or invited into the marketplace early on, whereas governing cross-side interactions sought to determine the degree to which host firms oversaw, refereed or influenced whether, and under what terms the two-sides interacted. In using these two forms of control, host firms invited or restricted, and rewarded or penalized particular behaviors.

Next, I provide more evidence for these two forms of control. In section III of this chapter, I consider their interactions as well as their implications for early-stage value creation. Together, these findings begin to answer the question of how host firms building two-sided marketplaces create value for initial participants in the absence of a large number of other participants.

Control Dimension #1: Managing Participant Heterogeneity

The first dimension of control was concerned with managing participant heterogeneity defined as the variance in marketplace participants' preferences, knowledge, skills, asset ownership as well as personal values and interests. Consistent with the idea that a network is valuable when it is expansive, founders and their teams believed that managing large numbers of heterogeneous participants would be critical in the success of their firms. These assumptions were articulated in terms of a long-term vision, which considered a future version of the marketplace as one that included participants not currently engaged in, but likely to adopt, the behaviors promoted by the marketplace once network effects were set in motion. In other words, success was perceived to be the function of facilitating interactions among a large number of heterogeneous participants. For example, the founder of Gear Up, a marketplace where individuals could sell and purchase pre-owned triathlon gear, wanted to "get more people outdoors" and expand access to sports for individuals that never had the opportunity or the financial means to pursue them by giving them alternative and more cost effective ways to own the appropriate gear.

> "I think sports are a fundamental human right, it touches a very primal instinct, to be active, to push ourselves, to use our physiology. I think what's really sad is how many great athletes never find out that they were truly good at a sport, or born to play it because they never could afford to play it in the first place. It's really expensive to get into serious cycling and triathlon, and even outdoor adventure sports, whether it's camping, hunting, or fishing; they're pretty expensive. We're looking at ways that we can get people outdoors, into a much more reasonable price point." (Gear Up founder, personal interview, June 2014)

Despite their plans to propagate particular behaviors to new and heterogeneous populations, in the early stages, host firms exhibited different levels of openness towards initial participants, that is, they exercised different levels of control over who could initially join and transact through the marketplace. Control over participant heterogeneity also varied on each side of the marketplace. In most cases, host firms were more concerned about managing supply-side participant heterogeneity (henceforth supply heterogeneity) than they were about managing demand-side participant heterogeneity (henceforth demand heterogeneity). The lack of intentional management of demand heterogeneity early on was common across all cases. However, host firms exhibited greater variance in how they managed supply heterogeneity. In some cases, they invited anyone willing to participate regardless of their likelihood to conform to appropriate behaviors. In other cases, they limited participation to likely-to-conform, and thus more 'relevant' supply participants. Below, I discuss in more detail host firms' arms-length approach to managing demand heterogeneity and the different ways in which they managed supply heterogeneity.

Managing demand-side heterogeneity

Participant heterogeneity refers to the variance in individual preferences and behaviors. Prior research on two-sided marketplaces has hinted at the importance of demand-side heterogeneity in marketplace strategy (e.g. Zhu and Iansiti, 2012) but has not systematically studied whether and how host firms might intentionally manage it when building a marketplace. In this study, host firms did not typically restrict or manage demand heterogeneity but invited and allowed as many buyers/consumers as there were willing to participate (the case of GrassHoppers was the only case intentionally managing demand heterogeneity and discussed in section III of this chapter under 'regulating' activities). I refer to low levels of control over demand heterogeneity as strategies for *leveraging demand heterogeneity*. 'Leveraging' implies that host firms viewed heterogeneity as an opportunity to gain access not only to as many consumers as possible but also to consumers with diverse preferences and characteristics and in turn, to make numerous matches. The founder of HuntlerZ explained the value it created for supply-side participants by leveraging demand side heterogeneity:

> "What we do is we basically...say to land owners, "We can broaden your market, which opens up to higher margins potentially. We can do it more effectively than you can because we know how to market online, and we know how to acquire hunters on the demand side, people that are interested in what you're offering." (HuntlerZ founder, personal interview, August 2015)

Leveraging demand heterogeneity also allowed marketplaces to capture interest as it naturally emerged even if not all inbound demand could be initially fulfilled. For Spokes, efforts to build a bike rental marketplaces involved focusing resources on building the supply side first in New York city and then in other cities, but on the demand side, Spokes did not exercise any control over who registered or transacted.

> “In terms of driving demand and creating that transaction, we were [initially] only going to focus city-by-city and build out that way. But we made the decision to allow growth to be organic and happen globally with no limits.” (Spokes chief marketing officer, personal interview, January 2016)

By leveraging heterogeneity on the demand side, host firms also gained insight into how different types of consumers behaved within the marketplace and identified the ones that were most likely to contribute to the growth of the marketplace. In some cases, access to heterogeneous consumers allowed host firms to develop their filtering capabilities over time and focus on creating value (e.g. offer additional features) for those more likely to continue participating, or voluntarily recruit others to the marketplace. In other cases, leveraging demand heterogeneity helped generate initial transactions—it allowed host firms to gain access to inbound demand, i.e. early adopters willing to join when the network was still small, and to then recruit appropriate supply-side matches. A couple of firms also took into account consumers’ interest in participating in locations or product categories in which resources were not initially invested when making decisions about locations in which the marketplace could expand next. In sum, openness to demand heterogeneity enabled the accumulation of resources (i.e. participants) and knowledge (i.e. information about participant preferences and existing behaviors) that helped not only generate initial interactions and but also facilitate future strategic choices.

Although leveraging demand heterogeneity suggests any kind of growth would be welcome, this approach did not always facilitate growth. In cases where demand side requests could not be quickly matched with the supply side, founders observed cases of participant “disillusionment”, that is the loss of initial participants’ interest and the ensuing futility in trying to regain their attention. This appeared as a common challenge in two-sided marketplaces where one side of the marketplace could grow faster than the other. However, founders and their teams did not appear concerned about managing the challenges emerging from leveraging demand heterogeneity at least initially. Instead, they focused on managing supply heterogeneity.

Managing supply-side heterogeneity

The data suggest that managing supply heterogeneity entailed control over the heterogeneity of initial supply participants based on transaction-related characteristics (i.e. participants' skills, knowledge or assets) as well as identity-related characteristics (i.e. personal values and interests). I thus define supply heterogeneity as the variance in supply-side participant preferences, knowledge, skills, asset ownership as well as values and interests.

Host firms pursued three strategies for managing supply heterogeneity, each of which was associated with different levels of control over types of participants: a) *leveraging supply heterogeneity* was associated with low levels of control; b) *limiting supply heterogeneity* was associated with high levels of control; and c) *balancing supply heterogeneity with supply homogeneity* was associated with both low and high levels of controls, allowing some heterogeneity to exist on certain dimensions while pursuing homogeneity on others. These three different levels of control over supply heterogeneity appeared driven by different assumptions about who assumed the risks of non-conformity. Moreover, evidence in how and to what extent supply heterogeneity was managed appeared in marketing and public relations activities; partnering choices; decisions about what types of identify verification to make mandatory for participants, as well as in choices about the geographic and product/service category scope of the marketplace at launch. Table 4.3 summarizes this evidence.

Leveraging supply heterogeneity entailed little control over supply participants and thus an inclusive approach towards initial participant recruitment. Virtually anyone with any indication of conformity was allowed or invited to participate. By leveraging supply heterogeneity, host firms sought to make markets more accessible and more transparent for all parties involved. As the founder of Print-In-3D, a marketplace for 3D printer owners and consumers, said, “anyone can come and find anything” on the Print-In-3D marketplace. Search functionality in this case was based on very few variables such as location (e.g. Print-In-3D, HuntlerZ)

To recruit heterogeneous supply participants, host firms used both lean communication channels (e.g. emails, blogs, Twitter, Facebook and other social media) and rich communication channels (e.g. fliers, sponsorships of events, trade show attendance, and collaborations with groups or interest-based communities). The combination of different types of outreach channels enabled broad reach.

In contrast*, limiting supply heterogeneity* entailed high levels of control over the heterogeneity of participants and an exclusive approach towards initial participant recruitment. By limiting supply heterogeneity, host firms created value for the demand side by assuming the responsibility of evaluating and vetting supply participants and thus promising demand-side participants access to the most relevant (e.g. experienced or knowledgeable) participants, as opposed to as many as possible. In other words, strategies for limiting heterogeneity aimed at recruiting relevant supply participants, and in doing so, managing the risks of non-conformity from emerging in the first place. This heavy-handed approach to managing the supply side was expected to bring together particular types of supply participants who shared the same characteristics, values, and interests. Put simply, homogeneity was expected to foster conformity.

In most cases, limiting supply heterogeneity was achieved by using primarily transaction-relevant criteria such as participants' skills, experience or asset ownership. For Print-In-3D, important parameters for participation were a participant's 3D printer and ability to process digital files and print different types of 3D parts. Less commonly, limiting heterogeneity was based on identity-relevant dimensions such as personal values and interests, particularly when marketplaces enabled exchanges related to lifestyle choices and hobbies (e.g. hunting, renting bikes when traveling out of town, or competing in triathlons). Alignment of participants' personal values with those promoted through the marketplace (e.g. eliminating idle assets) and shared interests (e.g. sailing) served as additional criteria for selecting and recruiting relevant supply participants and in turn, increasing the likelihood of conformity. The founder of Gear Up articulated the importance of recruiting participants with particular values and ostracizing those without them and as the foundation of a 'healthy community'.

> "There's a certain code of ethics and a certain code of behavior that we think makes peoples' lives easier, simpler, and better and that allows us to then transact goods through liquid markets. If there's a bad actor in the group, we want to flag them and get them the hell out of the community. A lot of people focus on community from the side of, "It's a good place." A healthy community ostracizes those who don't live up to the value expectations. If you're behaving poorly, you get booted or you get punished until you learn how to behave the right way. A community is ultimately a set of behaviors adopted by a lot of people, so that's what we're trying to create." (Gear Up founder, personal interview, June 2014)

The Gear Up product manager further explained the importance of proactively managing heterogeneity and preempting non-conformity in creating a marketplace where people behaved appropriately.

> "We take a lot of stuff down from the website, when people try to come on and sell bikes that maybe they bought at Walmart. We don't let anything like that sell on our website, so we go pull it down immediately. We have very strict standards on what we allow. Even though it [our service] is low in cost, that doesn't mean it's low in value. We have very strict value standards for the site." (Gear Up product manager, personal interview, July 2015)

To recruit relevant participants and thus limit heterogeneity, host firms used primarily rich communication channels, which facilitated detection of participants already possessing desirable skills, knowledge and values. Rich communication channels such as face-to-face interactions in various events and tradeshows allowed founders and their teams to identify potential participants; see them act; and discuss their interests. These offline recruiting efforts facilitated the careful selection of relevant participants; and allowed conversations to occur that ultimately contributed to building trust between supply participants and the host firm all of which helped convince initial participants to join the marketplace.

Balancing supply heterogeneity and homogeneity combined low and high levels of control over supply participants. It was an exclusive approach towards recruitment efforts on certain high level characteristics (e.g. categories of bikes accepted, condition of bikes accepted, preferred location) but was inclusive of anyone wanting to participate within those categories. These structuring of supply-side heterogeneity allowed host firms sought to create value for demand side participants by promising consumers access to relevant supply-side participants on certain dimensions. Balancing also invited and allowed supply participants not likely to conform immediately but who were likely to become conforming given the right structures and information. In other words, a balanced approach to managing supply heterogeneity was based on the assumption that non-conforming participants could evolve into conforming ones, thus creating more opportunities for the demand side to find an optimal match. The level of conformity sought in this case was not necessarily as high as in the case of limiting heterogeneity, but adequate enough for the marketplace to experience its first transactions.

Balancing supply heterogeneity with homogeneity was manifested primarily in three sets of activities. First, balancing was manifested in efforts to limit participation in specific product/service categories and at the same time, populate those categories with as many sellers/providers as possible. In doing so, host firms wanted to appeal to as many consumer preferences as possible while maintaining some level of order and simplicity. For example, Pi Society created categories of topics such as Science, Technology and Math within which students and tutors could ask or answer questions. Spokes offered bikes within the 'cruiser', 'road bike' and 'fixed gear' category. Second, host firms sought to educate participants about which categories they should participate in and thus capture greater levels of value from their participation.

> "Every bike owner who has listed a bike on our site might only get a few requests per year. But they don't realize that I can see on our end a hundred other queries for bikes in their neighborhood and that their bike didn't match the description. So, we're teaching our listers to list all their types of bikes. Don't list six road bikes of the same category, height wise and stuff. If you have a commuter bike, if you have a beach cruiser, if you have a cyclocross bike, if you have a road bike, there'll be very different people that rent those for that time period." (Spokes chief marketing officer, personal interview, July 2015)

Third, balancing entailed leveraging existing participants to expand into new product categories thereby relying on existing participants to introduce some level of heterogeneity to the marketplace.

Table 4.3: Activities for Managing Supply Heterogeneity

LEVERAGING HETEROGENEITY (Low Control)	**BALANCING HETEROGENEITY WITH HOMOGENEITY** (Average Control)	**LIMITING HETEROGENEITY** (High Control)
MARKETING AND PUBLIC RELATIONS		
• Anyone willing to participate, individuals and businesses • Online and offline recruiting channels • Any media outlets	• Participants fulfilling certain criteria and anyone interested • Online channels amplify offline recruiting efforts • Niche media outlets	• Participants fulfilling certain criteria and anyone interested • Offline recruiting channels (e.g. event attendance and sponsorship) • Niche media outlets
PARTNERING		
• With large audiences	• With both relevant and large audiences	• With relevant but not necessarily large audiences
IDENTITY VERIFICATION REQUIREMENTS		
• Few identity verifications required (e.g. email verification and/or credit card verification)	• Increasing number of identity verifications required as participants move closer to completing a transaction	• Multiple identity verifications required for access and participation (e.g. email, credit card and social media verification)
GEOGRAPHIC AND PRODUCT/SERVICE CATEGORY SCOPE		
• No or few limitations on participants' location • As many product categories as owners/providers can offer	• One location and one product/service category at time • More than one locations or categories based on inbound demand	• One location or one product category

> "A lot of people already have mountain bikes listed but then in the winter, they have skis and snowboards. They live at the mountains so they wanted to be able to list both, or they're near the beaches or coastal regions or in large major cities and they're like, "Hey, we have bikes but we also have surfboards and stuff and we really like to list this." (Spokes chief marketing offices, personal interview, July 2015).

To recruit both heterogeneous and homogenous participants, host firms combined lean and rich communication channels but did so selectively, after they had gained access to homogenous participants. For example, online advertising was used to amplify offline recruitment efforts. It allowed host firms to stay connected to potential participants with whom host firms had already communicated in tradeshows and events as well as scale up operations in new locations given their limited resources. The founder of GrassHoppers explains this selective combination of offline (fliers) and online (Google Adwords) recruitment efforts:

> "I want to scale out an entire city in one week. Certainly it's not possible with fliers now, right? We can use direct marketing to get a team in there, get enough demand to get a crew or two in there and then start expanding using online channels like Facebook because with the online channel, the acquisition is more gradual compared to the direct model. That's what I've learned. We can build up that way and expand fairly quickly using that method by combining online and offline." (GrassHoppers founder, personal interview, December 2015)

Control Dimension #2: Governing Cross-Side Interactions

Findings also suggest host firms exercised control over interactions between supply- and demand-side participants. This form of control sought to govern cross-side interactions by determining the extent to which host firms structured, refereed, oversaw, and influenced when and under what terms the two sides interacted. Governing cross-side interactions had implications for promoting and ensuring behavioral conformity on *both* sides of the marketplace.

Host firms adopted three strategies for governing cross-side interactions, each of which was associated with different levels of control: a) *lessening governance* was associated with low levels of control (and limited involvement) over cross-side interactions, including but not limited to transactions; b) *intensifying governance* was associated with high levels of control over cross-side interactions; and c) *balancing governance with participant autonomy* was associated with both low and high levels of control, with host firms overseeing some aspects of the interaction while encouraging participant autonomy on others. Approaches to how and to what extent host firms governed cross-side interactions consistently appeared in decisions and actions around managing information and money flows between the two parties, setting pricing structures, resolving conflict and disagreements between transacting parties, and peer ratings and reviews. Table 4.4 summarizes this evidence.

Lessening governance was a relatively arm's-length approach to managing initial cross-side interactions. Host firms exercised low levels of control over interactions by allowing participants to select transacting parties, evaluate each other's trustworthiness and determine without firm interference the process through which commitment to a transaction was made as well as the parameters of their transactions (e.g. pricing, timing of transaction completion, cancellation terms). Lessening governance sought to create value for participants by facilitating direct communication and evaluation (e.g. direct messaging functionality and seller reviews) and providing suggestions about relevant dimensions on which participants should be evaluated (e.g. pricing recommendations, rate of responsiveness). Through limiting involvement in cross-side interactions, host firms helped transacting parties decide if and how to transact with one another. In doing so, they enlisted participants in monitoring conformity, and reporting non-conformity. Yet, host firms did not avoid all responsibility. They carried out some vetting of supply-side participants, communicated to both sides information about appropriate behaviors, and promised informal resolution of issues on a case-by-case basis. For example, the founder of All Aboard, a marketplace for yacht rentals, left it entirely up to the owners to request from renters proof they could operate a boat. At the same time, All Aboard did not offer any insurance to protect parties from any potential damages:

> "We don't require renters to show proof they're licensed to operate a boat. The boat providers usually require it. [...] At the moment, we don't provide any insurance" (All Aboard founder, personal interview, August 2015)

In contrast, *intensifying governance* emerged as a relatively heavy-handed approach to managing cross-side interactions. Host firms determined whether and under what terms the two sides interacted by vetting supply participants, matching the two sides, and directly monitoring the quality of the outcome of exchange. In doing so, host firms preempted risk and sought to create value by carrying out selection, verification and filtering tasks on behalf of participants. This level of control over cross-side interactions appeared in host firms setting prices at which a product or service was delivered; verifying identities of both sides; recommending matches; and managing the back end operations of supply-side participants. Grasshoppers, for instance, carried out most of these activities so as to provide consistent service quality and decrease the cost of basic lawn care for homeowners. It exercised high control over cross-side interactions by setting expectations on both sides about appropriate levels of quality, and by charging homeowners a fixed price while paying providers a fixed wage per yard mowed. Others (e.g. Print-In-3D and HuntlerZ) controlled the matching process by routing incoming requests to particular sellers/providers that had proven capable of fulfilling similar requests. High levels of control over cross-side interactions also entailed constrained information flows between the two sides that kept any identification information out of the purview of participants both before a commitment to a transaction was made and after a transaction was completed. By exercising high control over the key terms of interaction,

Table 4.4: Activities for Governing Cross-Side Interactions

LESSENING GOVERNANCE (Low Control)	BALANCING GOVERNANCE W/H PARTICIPANT AUTONOMY (Average Control)	INTENSIFYING GOVERNANCE (High Control)
INFORMATION FLOW MANAGEMENT		
• Direct messaging • No limitations on any information exchanged before and after commitment to a transaction is made	• Direct messaging • Limitations on what kinds of information can be exchanged before commitment to a transaction is made; no limitations after commitment is made	• No direct messaging • Types of available information determined by host firms
PRICING STRUCTURES		
• Free for one side, membership or subscription fees for the other side (usually the demand)	• Transaction-based fees charged to both sides	• Free for one side, transaction-based fees charged to the other side (usually the supply)
MONEY FLOW MANAGEMENT		
• Money can be exchanged outside the marketplace (e.g. in person)	• Money cannot be exchanged outside the marketplace; third parties provide escrow accounts that release payments when transaction is completed	• Money cannot be exchanged outside the marketplace; all money flows managed by host firm
CONFLICT MANAGEMENT		
• Resolution of conflict as it emerges on a case-by-case basis • No insurance	• Proactive and reactive monitoring of quality of outcomes of exchange and consumer satisfaction (e.g. algorithms, pricing recommendations, automated flags of inappropriate language) • Insurance or firm-specific conflict resolution processes	• Proactive monitoring of quality of outcomes of exchange and consumer satisfaction (e.g. through audits) • Routing orders to high performing/conforming participants • Insurance
PEER RATINGS AND REVIEWS		
• Uni-directional (e.g. seller reviews)	• Bi-directional rating and reviews	• Uni-directional but not publicly available

host firms signaled to potential participants participant conformity would be effectively promoted and monitored.

Balancing host firm governance with participant autonomy entailed both host firm and participants overseeing and determining the terms of interactions. Instead of preempting risk, host firms chose to manage risk if and when it emerged. They created value by giving participants selection, verification and filtering tools to use and evaluate each other's trustworthiness. In contrast to intensifying governance where host firms entirely controlled the matching process, balancing governance with autonomy combined some level of influence over the matching process (i.e. by controlling which verification and filter tools to offer) but freedom for participants to choose with whom to interact. In other words, balancing governance with participant autonomy aimed at integrating participants' effort with those of the host firm. Balancing was manifested in activities that allowed participants to access each other's contact information after a commitment to a transaction was made; managed conflict through insurance mechanisms or firm-specific conflict resolution processes; and allowed both parties to rate one another.

In the case of Spokes, one example of balancing governance with participant autonomy comes is the protection guarantee Spokes offered both bike owners and bike renters. Spokes originally offered insurance that protected only bike owners from damages. More recently, it introduced an additional and optional form of protection, but this time for bike renters who could purchase liability insurance after they had already booked a rental. In this way, Spokes balanced its direct control over interactions with participants' autonomy by offering both mandatory insurance (for the supply side) and optional insurance (for the demand side). In offering renters the option to purchase liability protection *after* committing to a rental, Spokes avoided interference in the decision process leading up to making a commitment to transact. At the same time, it sought to play a more involved role in post-transaction interactions in case damages or accidents occurred. Its chief marketing officer explained the rationale for offering this type of bike renter protection:

> "We really guarantee bikes at $10,000, but the way it works is that the renter is responsible for the bike. God forbid something happens and they can't afford to pay, or they bail, or whatever the case is, we step in and pay. That's still for me a pain point for renters even if they acknowledged it, even if they had to pay for it, even if it didn't stop them from renting… It is not going to stop them from renting, but it is still an inconvenience and I think a negative experience for our platform." (Spokes chief marketing officer, personal interview, October 2015)

Summary. In sum, host firms signaled to potential participants that they could effectively promote and monitor participant conformity with appropriate behaviors by exercising control over participants and their actions on two different dimensions. The first dimension of control was concerned with managing supply heterogeneity. Some cases implemented this type of control more strictly than others in the early stages of the marketplace. The second dimension of control was concerned with governing cross-side interactions, including but not limited to transactions. Once again, host firms controlled interactions to different degrees, some choosing a highly involved approach in determining how, when, and under what terms the two sided interacted whereas other chose a more arms-length approach, allowing participants to select and evaluate their transacting party.

In the next section, I consider the interactions of these two dimensions of control and their implications for early-stage value creation. In section IV, I examine temporal patterns and propose new theory about the process of value creation in two-sided marketplaces.

III. A Typology of Value-Creating Activities

The two aforementioned dimensions of control over the marketplace and the three different levels at which they were exercised form the basis of a 3X3 matrix that yields nine value creating activities. These activities signal to potential participants the benefits of participation, and facilitate initial participant recruitment. Figure 4.1 presents the typology of value-creating activities and table 4.5 summarizes associated tactics as they emerged from the data. In explaining below the nine types of strategies, I discuss each row of activities and the low/high combinations first, before discussing the middle categories.

Aggregating activities leveraged supply heterogeneity and limited host firm involvement in cross-side interactions. They focused on recruiting as many sellers/service providers as possible who were already participating in other online channels (e.g. Craigslist, Angie's List, YouTube) by promising them access to a new customer lead generation channel. In certain cases, these efforts were sufficient to attract initial participants. More frequently, however, host firms went as far as to create listings for potential providers without providers' knowledge (e.g. HuntlerZ, All Aboard), or to find inventory from other websites and list it as their own (e.g. Gear Up).

> "We'd say, 'hey, we created this listing for you.' A lot of people were like, 'Hey, perfect, thanks!' They wanted more exposure." (HuntlerZ founder, personal interview, August 2015)

In essence, aggregation strategies tried to create the illusion of scale—the marketplace appeared to have a lot of supply-side participants but many of them had not chosen to register. Informants acknowledged that people who registered did not necessarily end up transacting within the marketplace but were not particularly concerned about this because accumulating a certain number of registrants was an accomplishment host firms could then broadcast and convince more participants to join. Underlying these efforts was the assumption that populating the supply side would provide a sufficient incentive for the demand side to join.

Another aggregating activity involved making non-exclusive content available on the host firm's site—sometimes content that was not easily accessible online or digitized at all. For example, All Aboard's founder often spoke of its desire to digitize sailing route handbooks only available in print. He confirmed that had All Aboard not ran out of funding, digitizing these sailing handbooks would have been its number one priority so as "to attract sailors and keep them aboard" (email message exchange, March 2016). In sum, aggregating sought to generate the illusion of scale by recruiting as many participants as possible from online directories or other marketplaces; creating accounts and listings on their behalf; and using not yet digitized and non-exclusive content to capture the attention of potential participants.

Cases pursuing aggregating activities did so at different points in time. Aggregating was typically the first activity pursued in contexts where technology had not yet been widely adopted (e.g. hunting industry, sailing/boat rental industry), or where certain assets or people were not easily discoverable online (e.g. 3D printers). Through

Figure 4.1: Early-Stage Value Creation Activities

MANAGING SUPPLY HETEROGENEITY

Limiting Heterogeneity (High Control)	**COMMUNITY AMPLIFYING**	**CERTIFYING**	**REGULATING**
Balancing Heterogeneity with Homogeneity (Balanced Control)	**CATEGORIZING**	**COMMUNITY BUILDING**	**EDUCATING**
Leveraging Heterogeneity (Low Control)	**AGGREGATING**	**GUARANTEEING**	**CHERRY PICKING**
	Lessening Governance (Low Control)	Balancing Governance with Participant Autonomy (Balanced Control)	Intensifying Governance (High Control)

GOVERNING CROSS-SIDE INTERACTIONS

Table 4.5: Strategies for Value Creation and Related Activities

Strategies	Activities	Evidence in Data	Cases Pursuing Activities
Leveraging Heterogeneity + Lessening Governance	**Aggregating**	• Recruiting as many existing sellers/providers as possible both online and offline • Allowing individuals, independent professionals and businesses to operate as sellers/providers • Creating listings on behalf of targeted participants without their initial knowledge or listing inventory from other online sources • Digitizing non-exclusive content	All Aboard Buoyant Gear Up HuntlerZ Print-In-3D
Leveraging Heterogeneity + Intensifying Governance	**Cherry Picking**	• Allowing any sellers/providers to participate while routing demand-side requests or orders to specific sellers/providers • Opening up participation to all other sellers only after selected ones have had the opportunity to fulfill orders/requests	All Aboard GrassHoppers HuntlerZ Print-In-3D Ship-N-Go
Leveraging Heterogeneity + Balancing Governance with Participant Autonomy	**Guaranteeing**	• Providing insurance • Setting in place non-contractual and firm-specific conflict resolution processes	Buoyant Ship-N-Go Spokes
Limiting Heterogeneity + Lessening Governance	**Community Amplifying**	• Sponsoring events of interest-based groups • Partnering with non-profits promoting activities or behaviors similar to those promoted through the marketplace • Seeking exposure in niche media outlets catering to individuals with shared interests and values	Gear Up Pi Society Spokes

Table 4.5: Strategies for Value Creation and Related Activities (continued)

Limiting Heterogeneity + Intensifying Governance	**Regulating**	• Limiting supply-side participation to experienced and qualified sellers/providers who could service specific consumer segments or requests • Controlling prices at which the two sides transact • Optimizing back-end processes that facilitate independent professionals efforts to run their businesses	GrassHoppers HuntlerZ Print-In-3D Spokes
Limiting Heterogeneity + Balancing Governance with Participant Autonomy	**Certifying**	• Offering or requiring sellers/providers to earn firm-specific certifications and showcase them on their profiles • Partnering with existing certifying bodies to offer sellers/providers opportunity to earn those certifications and showcases on their profiles • Establishing new industry-wide certifications	Ship-N-Go Pi Society
Balancing Heterogeneity + Intensifying Governance	**Categorizing**	• Using industry-specific or other widely recognized categorizing schemes to organize sellers/providers into familiar categories • Devising new categorizing schemes emerging from initial participants' behavior and preferences	Gear Up MaterialZ Pi Society Spokes
Balancing Heterogeneity + Lessening Governance	**Educating**	• Crafting personalized communication aimed at helping sellers/providers adjust certain listing parameters which were previously determined by participants • Recommending price levels at which sellers/providers may be more likely to complete a transaction • Creating original content aimed at training sellers/providers how to increase their revenue, communicate with the other side, and earn positive reviews	Gear Up MaterialZ Pi Society Ship-N-Go Spokes
Balancing Heterogeneity + Balancing Governance with Participant Autonomy	**Community Building**	• Creating online forums and tools for any individual (participant or not) willing to interact with others based on their shared interests • Supporting and rewarding voluntary efforts to monitor behavior of others, or train others in developing marketplace-relevant behaviors	Print-In-3D Spokes (tentative evidence)

aggregating, firms in these contexts created enough value to attract initial participants but over time they had to turn to other activities to survive (e.g. All Aboard, Buoyant, HuntlerZ, Print-In-3D). In other words, value from aggregating activities appeared insufficient for survival. In contrast, host firms pursuing, or planning to pursue, aggregating activities at a later stage did not anticipate aggregating alone to create value but considered it as part of the natural evolution of attracting more and more participants to the marketplace. Host firms pursuing aggregating at a later stage (e.g. Gear Up, Spokes) or planning to pursue it later (e.g. GrassHoppers, MaterialZ) focused their initial efforts on a number of other activities such as cherry picking, educating, community amplifying and guaranteeing (described below).

Cherry-picking activities sought to leverage heterogeneity as well as intensify governance over cross-side interactions by *proactively* limiting matching participants and thus limiting risk to which they were exposed. Findings suggest that cherry-picking activities did not prevent anyone from joining the marketplace, but took control of the matching process typically by routing demand-side orders or requests to specific sellers/providers. In doing so, host firms sought to enhance the likelihood consumer preferences matched the offering of sellers/providers. GrassHoppers pursued cherry picking first by hiring and training inexperienced individuals and then by approaching experienced lawn care professionals. In Print-In-3D's case, proactively matching demand with capable providers ensured the quality of 3D parts and a positive consumer experience. Print-In-3D allowed other printers to fulfill an order only after it had given a selected number of printers the opportunity to take it on first. HuntlerZ attempted to control the matching process in a similar manner by matching incoming dove hunting inquiries to dove hunting outfitters and landowners. However, this matching proved difficult without HuntlerZ having trusted relationships with the appropriate supply-side actors. Ship-N-Go's founder began to pursue cherry picking by meeting with particular drivers to establish a more personal relationship with them hoping to create "a small group of engaged drivers" (personal interview, July 2015) whom it planned to choose from its already registered drivers. Similarly to HuntlerZ, Ship-N-Go found cherry-picking activities challenging to pursue because the shipping industry relied heavily on personal relationships.

> "The last few weeks made me realize that a lot of the industry, a lot of the transportation industry is still very brick and mortar, still very much phone calls, and people versus the streamlined automation Ship-N-Go offers" (Ship-N-Go founder, personal interview, August 2015)

Data suggest that cherry-picking activities were pursued when host firms wanted to streamline certain behaviors (e.g. sellers'/providers' responsiveness), accelerate the speed of matching, or take advantage of situations in which few sellers/providers had the capacity to satisfy multiple consumers in relatively short timeframes (e.g. one 3D printer owner could process multiple orders in relatively short periods of time). Interestingly, cherry-picking activities entailed a background matching process that was not made public to the demand side. In doing so, host firms created value for participants by ensuring appropriate matches were made, and transactions produced high quality outcomes.

Cherry picking typically emerged after the marketplace had generated several transactions, and after initial supply-side participants provided evidence of their conformity. GrassHoppers was the only case pursuing cherry picking first, primarily because of the strict quality and efficiency standards it was trying to achieve. In this case, GrassHoppers used providers' prior experience and training of 'in house' crews as mechanisms for ensuring supply-side conformity. In most cases, cherry-picking activities were followed by regulating activities, which entailed high levels of control on both dimensions.

Similarly to cherry-picking activities, **guaranteeing** activities were also driven by the need to protect participants from poor-quality outcomes, but differed from cherry-picking activities in that guarantees provided protection *reactively*, after transactions had been completed (e.g. insurance). A reactive approach to assuming risk balanced host firm governance with participant autonomy. Through guaranteeing, host firms offered post-transaction assurances, but allowed participants to make pre-transaction decisions autonomously. Host firms got involved in interactions only after a transaction was completed and only if participants filed complaints. Guaranteeing activities included contractual mechanisms such as insurance and penalty terms (e.g. in the cases of Buoyant and Spokes) as well as non-contractual mechanisms such as firm-specific conflict resolution steps (e.g. in the case of Ship-N-Go). The latter option was useful when host firms did not have the resources to provide contractual mechanisms for protecting transacting parties. The founder of Ship-N-Go explained its non-contractual conflict resolution process, which sought to manage conflict between the two sides if and when it emerged.

> "We have a five-step dispute resolution process…if things were to go wrong then we have a well defined process in place for people to go through that dispute and try and come up with an amicable resolution…there's nothing contractual for the 5-step process until the very end. Essentially, a lot of it is based on good faith but a lot of it is also based on good communication, assuming that both parties are willing to come to the negotiating table. If you've got some stammer who just joined the site with fake information and who wanted to steal someone's spot, there's not much we can do unfortunately. I mean there are thieves everywhere, you can try and get as smart as you like but thieves are always going to find a way to rob a bank or steal jewelry, or do whatever they want to do. All you can do is, I think, minimize that risk as best as possible." (Ship-N-Go Founder, personal interview, July 2015)

Insurance and other contractual guarantees appeared to be a priority for host firms in contexts were participants could experience bodily or psychological harm (e.g. death of a cyclist while renting), or when highly valuable assets were sold or rented (e.g. yachts). Although acknowledged to be important for generating trust between the two sides, contractual guarantees were less common in the early stages primarily because of the costs associated with offering such instruments, the newness of the peer-to-peer category which many insurance companies did not yet cover, as well as the difficulties in finding insurance partners when host firms had not yet become legitimate intermediaries. For instance, All Aboard and Ship-N-Go had searched for insurance partners but could not find ones offering or willing to create appropriate insurance instruments. In contrast, Buoyant was able to create a unique insurance instrument with a well-known insurance company when it launched its beta site. Its website archives show that insurance was used as a point of differentiation from competitors, and a key part of its value proposition for initial participants. Buoyant's vice president of business development corroborated this finding and confirmed the importance of insurance instruments for attracting initial participants:

> "In 2012, the idea [for Buoyant] was essentially born. Then, the founder was trying to secure the insurance platform, and that was something that was first of its kind and obviously a very key part of our business model." (Buoyant, VP of Business Development, personal interview, July 2015)

Community-amplifying activities limited supply heterogeneity and lessened governance of cross-side interactions. By limiting heterogeneity, host firms sought to recruit participants with certain qualifications (e.g. particular knowledge, skills or assets owned) or with certain identity characteristics (e.g. personal values and interests relevant to the marketplace). Community amplifying occurred through partnerships or sponsorships that enhanced the efforts of certain groups of individuals or communities who already came together to share certain interests or activities. Such groups were interest-based groups (e.g. cycling communities), or non-profit organizations (e.g. biking initiatives promoting alternative forms of transportation), or the audiences of niche media outlets (e.g. sports-related blogs).

Community-amplifying activities facilitated recruitment of highly relevant participants, i.e. individuals whose shared interests and personal values motivated them to join the marketplace and transact with similar others. For example, the chief marketing officer at Spokes believed that individuals choosing biking as a lifestyle choice were more likely to participate in the Spokes marketplace. His view was corroborated by the findings of a Spokes survey with its participants. Bike owners renting their bikes on Spokes rated making money a less important motivation for participating than helping others bike, and sharing their interest in biking with other cycling enthusiasts. By recruiting these types of individuals, Spokes aimed at bringing cycling enthusiasts together and giving them the opportunity to interact with others who shared their interest.

Gear Up also pursued community-amplifying activities by donating its service fees to various bike initiatives and non-profits that promoted alternative forms of transportation. The Gear Up team also assisted in various events—some of which were organized by bike communities and non profits—so as to connect with relevant individuals whose passion for and commitment to outdoor activities would likely translate in purchasing or selling their equipment through the Gear Up marketplace. The founder of Gear Up further highlighted the importance of using personal values and interests as a criterion for selecting participants during an interview at a coffee shop where he saw an individual carrying a reusable bottle. He said:

> "That guy is my ideal customer. He's got an REI water bottle. That's a signal to me; that's who I'm targeting. And if I can get him hooked on it, so he tells some other friends of his how he sold his backpack, that's really great." (Gear Up founder, personal interview, October 2015)

Evidence suggests that community-amplifying activities were more effective recruitment mechanisms when host firms were able to extend as opposed to simply support the growth efforts of existing communities. For example, when Gear Up donated its transaction fees to particular non-profit organizations, it asked non-profits for access to their mailing lists as a way of reaching relevant audiences. These efforts however were met with little reciprocity from receiving non-profits. In contrast, Spokes found more interested collaborators in bike valet operators, which are typically operated by local governments and non-profit and provide the same service as car valets but for bikes during large-scale events. To further bike valets' efforts and promote cycling as opposed to driving during major events, Spokes provided bike valets with additional bikes and personnel during major events when demand for bike rentals spiked. In return, Spokes representatives raised awareness of peer-to-peer bike rental services among individuals biking to these events. The cases of Gear Up and Spokes show that community-amplifying activities were often pursued in contexts where communities around a particular activity or hobby already existed. They were also pursued after, or in conjunction with, categorizing and educating activities (e.g. Gear Up, Spokes).

In sum, community-amplifying activities created value for initial participants by offering them new channels through which they could pursue their interests, and grow their communities. In doing so, host firms leveraged individuals' shared interests and values as a naturally occurring trust-building mechanism that also increased likelihood of participants conforming with appropriate behaviors. At the same time, host firms did not have to directly oversee interactions but relied on existing communities' shared values and interests to govern they wanted to interact.

Regulating activities limited supply heterogeneity and intensified governance of cross-side interactions. Similar to cherry picking, regulating focused on proactively selecting sellers/providers but limited supply heterogeneity further by capping supply-side participation based on levels of demand, or owning inventory with which the supply side could be populated. Regulating also intensified governance by taking control over the matching process or the back-end activities of supply-side participants (e.g. how they arrived at pricing, or the systems they used to manage order fulfillment). For example GrassHoppers only allowed a specific number of experienced providers to satisfy demand (the number fluctuated based on demand in peak and low seasons), and determined the price of lawn care service. Print-In-3D took control over the price estimation process through the use of software and algorithms. Spokes designed and attempted to manufacture a bike with which it planned to populate its bike rental marketplace particularly when it entered new geographic markets. A number of other cases turned their attention to helping supply side participants managed activities such as marketing, and customer service (e.g. GrassHoppers, HuntlerZ, Print-In-3D, Spokes). In doing so, regulating activities sought to exert more control over the matching process, while enhancing the value delivered to sellers/providers.

In the case of Grasshoppers, regulating was also manifested in controlling who could participate on the demand side, i.e. lawn care services were made available to lots other than corner lots, smaller than 0.3 acres, and in specific neighborhoods. In a meeting between the GrassHoppers founder and the founder of one of GrassHoppers' competitors, the GrassHoppers founder declined a partnership offer that would allow GrassHoppers to service the competitor's customers because he doubted these customers would fulfill GrassHoppers' criteria for participation. With its strict handle on participation on both sides of its marketplace, Grasshoppers sought to limit the number of dimensions on which the match could occur, thus ensuring conformity.

Regulating activities created value by making high quality and speedy matches often at the expense of making numerous, and potentially less optimal, matches. In other words, highly relevant supply participants were able to produce high quality transaction outcomes and were considered more critical for value creation than a large number of heterogeneous participants potentially producing more transactions but lower quality outcomes. Regulating activities also created value by creating process innovation. For example, Print-In-3D created software that pre-calculated the cost of 3D printing based on volume and other characteristics of the final part thus providing both sides with a uniform measure for calculating their costs. GrassHoppers created process improvements by developing a system for mapping "service areas" that determined how lawn care professionals were assigned to jobs. Lawn care professionals were matched to jobs close to one another thus traveling shorter distances and incurring lower fuel costs. GrassHoppers' approach to scaling its marketplace service area by service area generated knowledge about staging growth in a way that facilitated the matching process and improved the ways in which the lawn care service industry operated. Spokes was similarly concerned about taking control over the matching process while populating its marketplace with high quality bikes. In collaboration with a design firm, it had created a bike, which won a high profile design award. Spokes planned to manufacture and lease this bike to "micro entrepreneurs" (Spokes chief marketing officer, personal interview, October 2015), i.e. individuals who would run their own independent bike rental businesses through Spokes. By introducing a specific high quality bike to the marketplace, Spokes wanted to decrease variance in quality of bikes listed, and speed up the initial growth of the supply side when entering new locations.

For GrassHoppers, Print-In-3D, and Spokes, regulating did not prove the most 'scalable' activity. The founder of GrassHoppers explained that recruiting experienced providers and ensuring high quality of service was critical in activating initial growth but suggested that high levels of control impeded the speed of growth and the achievement of large-scale network effects.

> “I think quality is pretty important. Number one, meeting providers face to face, I can see if they're for real or not. Number two, because it's a long-term play for us, we want the turnover to be really low. [Face to face meetings with providers] helped in filtering them out but I know it's not scalable at this time. (GrassHoppers founder, personal interview, February 2016).

By imposing a tight grip on interactions through regulating, host firms also ran into the challenge of inducing behaviors that participants did not typically exhibit or saw as valuable. GrassHoppers for instance delivered service only on specific days of the week. GrassHoppers declined homeowners’ requests for service on different days, so as to maintain control over its service routes. GrassHoppers also had to train providers to abide by certain rules about when a service could or could not be rendered. When a home’s front yard was accessible but its back yard locked, providers were asked not to service that lot at all, move to the next one and return when the entire lot became accessible. Although these efforts ensured routing efficiencies, they required resources in setting participants’ expectations about what they could do in the marketplace or expect to receive from it. The founder of GrassHoppers explains this challenge below:

> “Customers always think their grass is not high. The providers always think the grass is high. How do you set the expectation on both ends? On the supply side, it's really easy. They understand because they're in the industry. If we say, don't service anything over 10" or if your mower can't mow it, then you can't service it, right? We’ve already done a lot to set expectations on the demand side but it's a constant battle.” (GrassHoppers, founder interview, February 2016)

Certifying activities also limited supply heterogeneity but balanced governance of cross-side interactions with participant autonomy. Limiting supply heterogeneity was evident in broadcasting to all participants particular providers’/sellers’ conformity. For example, Ship-N-Go devised its own “level 3” driver certification, which included mandatory identity verification and background checks for all drivers committing to transport a shipment. In contrast to cherry picking and guaranteeing, with which host firms assumed the responsibility of vetting participants and protecting them from poor transaction outcomes, certifying activities provided tools for sellers/providers to build credibility in the eyes of consumers. At the same time, host firms allowed buyers/renters to decide independently whether the certification and those who held it were trustworthy or capable. In doing so, host firms balanced their own involvement in interactions with participants' autonomy.

Certifying activities were typically pursued in contexts when few standards existed for evaluating a provider. Findings suggest the greatest challenge with certifying activities lay in legitimating the certification mechanism itself. As a result, certifying activities typically emerged at a later stage in the marketplace's life. Ship-N-Go introduced its own certification soon after it launched but its failure to induce transactions suggests that firm-specific certifications are ineffective in the early stages when host firms are not yet recognized as credible intermediaries or certifying bodies. Over time, the Ship-N-Go founder realized that certifying its drivers using an existing certification by an independent body (e.g. a certification for transporting pets over long distances by an internationally recognized pet transportation association) would have been more effective in inducing transactions than its own certification. However, efforts to strike this partnership failed. Challenges in establishing one's own certification was also evident in the HuntlerZ case which postponed its plans to offer the supply side the opportunity to earn 'badges of expertise' based on certain levels of activity and quality until the marketplace had achieved significant scale.

The MaterialZ case provides evidence of a different type of certifying activities that focus on legitimating not the participants but the host firm as a trusted intermediary. MaterialZ earned a number of different types of certifications for payment safety even before it launched. These widely acknowledged certifications were expected to lower both sides' resistance to participating and were attainable with relatively little resource investments.

Categorizing activities balanced heterogeneity with homogeneity and lessened governance over cross-side interactions. Contrary to aggregating, categorizing activities balanced supply heterogeneity with supply homogeneity by determining the categories in which sellers/providers could enlist while recruiting as many heterogeneous participants within those categories as possible. For example, MaterialZ allowed independent contractors to list material in categories based on classification codes widely used in the construction industry. Buoyant initially used categorizing schemes based on common yacht rental behaviors, such as occasions around which people rented boats (e.g. weddings, romantic getaways, labor day activities, fishing). It later changed its categorizing schemes based on location and consumer preferences for hiring a captain or handling a boat on their own. Categorizing leveraged homogeneity with heterogeneity by using particular organizing schemes to create order in what could be a chaotic list of options, while inviting heterogeneity within those categories. As a result, categorizing created value for sellers/providers by make their offering more relevant to a specific category, and for buyers/renters by simplifying the cognitive aspects of search. In turn, categorized helped both sides search and find appropriate transacting partners.

Categorizing activities typically appeared in the very early stages of the marketplace and were either followed or pursued in conjunction with educating activities (explained below). As already mentioned, in some cases categorizing activities were based on pre-determined and widely acknowledged categorizing systems (e.g. industry-wide categories for construction material, or bike size). In other cases, categorizing schemes emerged from initial participants' behaviors. Gear Up viewed effective categorizing to reflect buyers'/renters' preferences and help induce more transactions. The founder explains below how information on participants' interactions with inventory listings could be used to improve categorizing activities (e.g. organization, search, discovery).

> "The Instagram model would have been smarter for us. Now, we're building a mobile app…Even if you're not going to buy the bike because it's not the right size for you, you can still like it as a trade bike and that crowd information, that crowdsourcing gives us the opportunity to feature the best items on the site without having to do much work on our own." (Gear Up founder, personal interview, July 2015)

Educating activities balanced supply heterogeneity with homogeneity and intensified governance of cross-side interactions. Balancing heterogeneity with homogeneity in this case was evident in efforts to educate existing and potential participants about how to conform, i.e. how to participate successfully in the marketplace. At the same time, educating activities governed interactions more closely, albeit indirectly. Through educating activities, host firms sought to steer participants towards taking certain actions, which ultimately determined whether and under what terms a transaction occurred. For example, Spokes, Ship-N-Go and Gear Up used personalized onboarding emails, pricing recommendations, training handbooks, and advice to help new and potential participants capture as much value as possible from the marketplace. In the case of Spokes, initial bike owners received recommendations for categorizing their bikes so that renters could find them more easily. In doing so, Spokes also improved the effectiveness of its categorizing activities.

> "Every single user that signs up, they get an email from somebody whether it's me, or anyone else in our company. Often times we will say "I just looked at your account. I saw this, this, and this. You might want to actually adjust your filtering or you might want to adjust which category your bike is in. I think you might have selected the wrong one. You have better luck here." (Spokes Chief Marketing Officer, personal interview, July 2015)

Relatedly, educating appeared more effective in promoting conformity when carried out interactively and in ways that asked participants to exert little effort to conform. In Ship-N-Go's case, and to its founder's surprise, drivers rarely downloaded a twenty-page e-book the founder had written about how to bid appropriately, earn positive reviews and deliver exceptional customer service. Moreover, the effectiveness of educating activities in promoting particular behaviors and conformity appeared greater in marketplaces where individuals often participated on both sides likely because their experience with both sides of the marketplace allowed them to acknowledge more readily the value of adopting particular behaviors. In this case, promoting and monitoring conformity was relatively easier and economized resources because the same educating efforts reached individuals who participated on both sides.

Last but not least, **community building** balanced low and high levels of control on both dimensions. The limited evidence of community-building activities suggests that it was either a resource-intensive activity or one that depended on having recruited a critical mass of participants. The numerous references to "building a community" but few observed actions suggest that community building required substantial resources that cases in this sample had not yet achieved.

Balancing low and high control on both dimensions appeared in the data in the form of creating online forums for individuals wishing to interact based on a shared interest but without necessarily transacting; and leveraging the voluntary efforts of participants to monitor, support and educate new participants so as to promote conformity. Print-In-3D, for example, created an online forum for anyone to ask and answer questions related to 3D printing but stopped investing any resources in maintaining the site when those interactions did not translate in transaction growth. In several other cases, informants often referred to their goal of creating new communities either by inducing the participation of currently irrelevant audiences (e.g. expanding hunting and biking to non hunters and non cyclists), or by creating new types of communities (e.g. providing construction professionals with opportunities to come together and donate their construction expertise to charities). Yet, community building was expected to emerge after other 'balancing' activities such categorizing, and educating would have been pursued and new markets as well as new behaviors would have been created.

> "We've seen an uptake of archery and shooting, and people going to the ranges are now curious about harvesting their own meat. We've looked at doing an introductory course 'Hunting for the Non Hunter', and creating an entirely new market of people that didn't grow up hunting. How do you shoot a bow? How do you get a hunting license? How do you find a place to go hunting? Essentially creating a whole new marketplace. We are excited about testing that out." (HuntlerZ founder, personal interview, August 2015).

Informants' definitions of 'community' also suggested that host firms envisioned new communities to emerge from making employee and participant roles permeable.

Spokes' hiring of community organizers who helped coordinate issues 'on the ground' promptly and independently provides some tentative evidence for this claim.

> "I didn't even know about this until after it happened. I got this email from somebody that said they would be telling every single person possible about Spokes and that they were completely floored by the experience they've had because when they had a problem, our community managers in New York jumped on it, went and picked the bike up from the person, and got it fixed out of one of our partner bike shops. We paid for it, turned it around and got the bike back to him all within 24 hours. He was completely just in awe of how easy it was and how much we took care of him instead of fighting him on insurance claims." (Spokes Chief Marketing Office, personal interview, July 2015)

In sum, community building sought to create value for participants by providing them with the tools to engage in non-transactional interactions and share their interests and knowledge with each other. Typically discussed as a long-term goal, community building was expected to sustain participant recruitment and governance of interactions by integrating efforts of host firms with those of existing participants who would voluntarily recruit and monitor new ones.

Summary. I have presented a typology of activities that explain how specifically host firms sought to create value for initial participants in the absence of compelling network effects. This typology is based on considering the interactions of two different types of control: control over supply heterogeneity and control over cross-side interactions. Controlling supply heterogeneity involves managing to different degrees the variance in initial participants' knowledge, skills, asset ownership as well as personal values and interests. Controlling cross-side interactions entails governing to different degrees how, when and under what terms the two sides interact. In considering the interactions of these two forms of control, a typology of nine value-creating activities emerges.

In the next section, I build on this typology to map the sequence in which host firms prioritized activities. Patterns reveal two distinct paths each of which entails a different process of value creation in early-stage peer-to-peer marketplaces.

IV. Processes of Early-Stage Value Creation in Peer-To-Peer Marketplaces

In this section, I present findings on temporal patterns of value creation. I track the sequence in which each of the ten cases pursued the nine previously mentioned value-creating activities over time. On average, patterns were mapped for an average of 25 months with the starting point for all cases being the launch of their beta website (this point also marks the onset of participant recruitment efforts). The time period observed was between 9 and 41 months with the median timeframe also at 25 months. Emerging patterns suggest host firms pursued two alternative paths to value creation. Figure 4.2 provides evidence for each process by grouping cases based on where they started and what activities they pursued over time. Table 4.6 presents the same evidence in narrative form.

Given limited resources, host firms focused more attention and resources on putting certain activities into gear, which is when the shift is identified. Shifts in activities are identified when a particular activity was prioritized over others but prior activities typically continued to be pursued. In certain cases, activities were tried and then abandoned if they did not generate the expected growth outcomes or if they could not be implemented fully. Figure 4.2 indicates continuously pursued activities in opaque gray boxes and tried and abandoned activities in striped boxes. The numbers indicate the sequence in which activities were pursued.

The first path began with activities that exercised either low control on both dimensions, or low control on one dimension and high control on the other. Visually, host firms shifted from one corner to another corner of the typology matrix, i.e. they pursued almost no balancing activities. Cases following this path shifted activities less frequently (twice on average). They began by leveraging heterogeneity while lessening governance over cross-side interactions (e.g. through aggregating activities). Over time, they tightened control of either, or both, types of participants (e.g. regulating) and their interactions (e.g. cherry picking). Cases following this first process of value creation included All Aboard, GrassHoppers, HuntlerZ, and Print-In-3D.

The second path began with activities that balanced control on one dimension followed by other balancing activities. Visually, host firms shifted from the middle column or row to the other middle column or row of the typology matrix, i.e. they pursued primarily balancing activities. On average, firms following this path shifted activities more frequently (3 times on average) than firms in the first path even though the average age--and research observation window--was similar with firms in the first path (24.75 months months for the first path and 23 months for the second path). They typically began by balancing heterogeneity with homogeneity while lessening governance of cross-side interactions (e.g. through categorizing activities). Over time, they shifted away from balancing and towards lessening governance activities (e.g. Gear Up shifted from curating and educating to community amplifying and aggregating activities). Cases that tried to shift away from balancing activities and towards intensifying governance activities did so unsuccessfully, and then opted to lessen governance. For example, Ship-N-Go and Spokes shifted from balancing activities to cherry picking and regulating activities but when these attempts failed Spokes reverted to community amplifying whereas Ship-N-Go went out of business). Cases in the second path were Gear Up, Pi Society, MaterialZ, Ship-N-Go and Spokes.

In both processes, shifts aimed at introducing more value to the marketplace so as to attract more participants. When pursued successfully, activities brought about growth in the numbers of participants or the numbers of interactions in the marketplace. Failure usually resulted from not having adequate resources to fully pursue an activity, or from experiencing disappointing outcomes such as minimal growth. Regardless of whether activities were successfully pursued or not, host firms used these experiences to garner insights about participant behavior and decide how to create additional value for both existing and future participants. Ultimately, both paths had the same goal: to grow the marketplace by leveraging early-stage participants and knowledge about their behavior to promote growth. The primary difference between these two "equifinal" processes of value creation is that one group of cases pursued activities that exercised *either* low *or* high levels of control whereas another group initially pursued activities that balanced low *and* high levels of control. Cases in the latter group tended to move to lower levels of control over time. I explain this processes and the implication for value creation in more detail below.

Path 1: Transitioning from Low to High Levels of Control

The first process model appears to occur fairly consistently in four cases (All Aboard, GrassHoppers, HuntlerZ, and Print-In-3D). It typically began with aggregating activities so as to provide initial participants with some evidence of scale. Yet, openness to all participants combined with little governance over their interactions increased the likelihood of non-conformity and over time, raised concerns about controlling the quality of transaction outcomes. At the same time, limited governance of interactions often gave participants the opportunity to initiate interactions within the marketplace but complete them outside of it. For example, HuntlerZ initially invited as many hunting outfitters and landowners as possible to participate, and charged interested hunters a membership fee for gaining access to outfitters' and land owners' contact information. In doing so, HuntlerZ intentionally avoided capturing any value when the two parties transacted directly (e.g. when a hunting lease or a hunting trip was booked). As membership grew, the founders began considering how to capture value from multi-thousand dollar transactions originating but being completed outside the HuntlerZ marketplace. Their attempt in cherry-picking activities (e.g. routing demand for dove hunting trips to particular outfitters) failed primarily due to lack of trusted relationships with the appropriate outfitters. This and other failures in taking greater control over the matching process led HuntlerZ to transition towards providing website building, marketing and back-end operations management for outfitters. Essentially operating as the marketing arm for outfitters, HuntlerZ focused on the needs of supply-side participants and on developing trust and credibility with them. At the same time, HuntlerZ's membership marketplace was kept live throughout this transition, and used as a “sandbox” (founder interview, February 2016) to test features and messaging, and observe hunters’ reactions to these changes. The team then used knowledge on hunters’ behavior to improve the services it offered outfitters in its new line of business. In this way, HuntlerZ postponed the building of a two-sided marketplace until it had gained access and developed relationships with very specific supply-side participants who could later drive more similar supply participants to the marketplace. Two months after the shift, these efforts yielded tentative evidence of success. HuntlerZ had successfully recruited and on boarded seven providers and was recruiting more team members to keep up with growing demand.

GrassHoppers followed a slightly different path. Its founder’s decision to fix the price of basic lawn care at $22 per yard was intended to provide affordable lawn care to consumers as well as force operational efficiencies on the supply side. Being significantly lower than the $40-$45 price point standard in the industry, the $22/yard number was not met with enthusiasm by experienced lawn care professionals. Even though the supply side was made accessible to anyone interested in participating, in the background GrassHoppers built its likely-to-conform team, i.e. it hired and trained inexperienced lawn care professionals. However, after six months, these cherry-picking activities proved expensive and difficult to scale. GrassHoppers then turned to working with a specific number of independent lawn care professionals carefully selected based on their prior experience and equipment. Still at the $22 price point, GrassHoppers created more value for these providers by giving them more efficient routing schedules, and assuming marketing and customer service responsibilities (regulating activities).

Print-In-3D also transitioned from lower to higher levels of control. Although its original, uninvolved approach (i.e. aggregating) proved successful for recruiting initial 3D printer owners and generating some transactions, over time the founding team became aware of the importance of simplifying the matching process so as to give consumers what was most important to them, i.e. high quality 3D-printed parts. To do so, Print-In-3D intensified control over interactions by giving specific 3D-printer owners the opportunity to commit to fulfilling an order. If none of these owners picked up the order, Print-In-3D then presented the opportunity to the entire marketplace (cherry-picking activities). A little less than half a year later, it began to select collaborators who had proven their ability to conform on dimensions of quality and speed of order completion. Print-In-3D further simplified and controlled the matching process by also determining the cost of 3D printing jobs through the use of software (i.e. regulating). The founder explained this transition:

> "We made a really big shift to our model from the approach where anyone can come and find anything and it's completely up to these people, to a more managed marketplace model where you come through us. Then whether through human touch, or software we help reprice it; we coordinate it. Then the finished product is delivered to you…This switch was kind of the marking point in our company's trajectory. If we hadn't made that change I think we probably wouldn't exist anymore. Since then, we really started growing fast and with the margins that we needed to have." (Print-In-3D founder, personal interview, December 2015)

In the case of All Aboard, interviews as well as company archives provided evidence of aggregating activities at launch, i.e. recruitment of any yacht owners as well as charter companies willing to participate. Early on, the founder sought insurance partners but found no willing collaborators given the early stage of his firm. As the firm continued to recruit more participants, it turned to a limited number of cherry-picking activities by matching inbound rental requests for specific yachts with appropriate yacht owners and charter companies. Soon after, All Aboard ran out of funding and closed down its operations. Its short life span suggests that focusing primarily on aggregating activities particularly when the basis of exchange is a very valuable piece of asset (i.e. a yacht) is not a sufficient driver of value creation.

Temporal patterns from lower to higher levels of control generate insights about an 'outside-in' path of value creation that seeks to attract as many participants as possible early on—regardless of their relevance—and over time, to exercise first greater control over their interaction and later to winnow participants particularly on the supply side to the most conforming ones. These transitions appeared driven by host firms' desire to increasing the degree of participants' conformity and the quality of their exchanges and ultimately to attract more participants as well as capture greater levels of value. For example, HuntlerZ's transition from recruiting and servicing heterogeneous participants on both sides, to catering exclusively to the supply side aimed at delivering more compelling value to the side of the marketplace that proved the hardest to recruit. In doing so, HuntlerZ postponed the concurrent recruitment of both sides and focused on recruiting and providing value to the supply side with the expectation that these 'one-sided' efforts would also provide access to the demand side (i.e. outfitters' existing customers) and eventually accelerate growth on both sides.

Adopting a somewhat different approach, GrassHoppers and Print-In-3D continued to grow both sides of their marketplace but tightened control over several variables such as pricing, messages exchanged between the two sides, and customer service. Control over these key aspects of the interaction allowed host firms on one hand, to decrease instances of non-conformity and on the other hand, to modify those variables and determine if more optimal matches could be made. For GrassHoppers, for example, determining the neighborhoods in which service could be delivered, fixing price of service, and assigning providers to houses in the same neighborhood created routing efficiencies and decreased the cost of lawn care services. Yet, feedback from providers made the founder aware of an opportunity to utilize less strict routing schedules so as to allow service providers to earn more money and GrassHoppers to increase transactions. In other words, control over modifying tightly-controlled aspects of the marketplaces that allowed host firms to identifying new pathways to growth.

> "We found out that density [i.e. increasing number of homeowners within service areas] allows us to have a few providers going outside service areas without costing them a lot more time. And they're happy to get that extra money. We found out that if it's okay with the provider, it should be okay with us. We just don't want it to be a chaotic process where okay, any day you want, you can do it." (GrassHoppers founder, personal interview, February 2016).

In sum, the first process of value creation in early-stage peer-to-peer marketplaces entailed transitions from lower to higher levels of control. Lower levels of control sought allow as many participants as possible to join the marketplace, and to generate some preliminary evidence of scale that signaled to potential participants the marketplace had some momentum. In most cases, aggregating activities sought to create not actual scale but the illusion of scale. Over time and as the marketplace grew to include increasingly heterogeneous participants, host firms intensified governance over cross-side interactions and later limited supply heterogeneity on the supply side to the most relevant participants so as to maintain some level of conformity and relatedly, quality of exchange outcomes.

Path 2: Transitioning from Balancing to Low Levels of Control

A second group of cases provided evidence of a value creation process that began with balancing low and high levels of control on at least one dimension, followed with more balancing activities before transitioning to lower levels of control. Unlike cases in the first path that transitioned from lower to higher levels of control, cases following this path (e.g. Gear Up, MaterialZ, Pi Society, Ship-N-Go, Spokes) transitioned from average to lower levels of control whereas attempts to exercise higher levels of control were mostly unsuccessful. For all cases in this group except Ship-N-Go, this process typically began with categorizing activities followed by educating activities. Ship-N-Go instead began with certifying activities that generated some revenue from verifying drivers as 'background checked' but yielded no transactions with the demand side. Similar to other cases, Ship-N-Go engaged in educating activities to help existing and new drivers increase their chances of wining jobs through the Ship-N-Go marketplace.

After educating activities were set in motion, both Spokes and Ship-N-Go then initiated guaranteeing activities, the former through insurance and the latter through a five-step conflict resolution process. After this point, cases started to move away from balancing activities and towards low-control activities such as community amplifying and aggregating. Gear Up and Spokes opted for community-amplifying activities that facilitated recruitment of highly relevant participants. As those efforts were well under way, Gear Up then decided to start listing “fake inventory” from other online retailers (Gear Up founder, personal interview, January 2016). Although not actually fake, this inventory was not pre-owned but new and available from conventional retailers. At the same time, Gear Up expanded to other categories of items, such as camping gear thus further leveraging supply heterogeneity. Its aim was to populate the supply side with a greater number of listings that would project the illusion of scale and appeal to buyers’ heterogeneous preferences for equipment. These efforts accelerated growth in transactions week over week for about two months but growth halted when Gear Up fell victim of transaction fraud and its payment-processing partner made Gear Up responsible for paying tenths of thousands of dollars for the transactions it had facilitated. Interestingly, Gear Up initially monitored the identity of its initial participants manually, but as it decided to limit its involvement in cross side interactions, it relied on its payment processing partner to verify transacting parties’ identity. Gear Up’s experience suggests that lessening governances may release certain resources from monitoring interactions so that they can be invested in recruiting more participants, but may render host firms susceptible to participant misconduct, which in in this case threatened survival.

Spokes also transitioned to community amplifying by sponsoring bike valet operators through which it reached cyclists. Although this proved to be successful for recruiting relevant participants, Spokes wanted to accelerate growth even further particularly when entering new cities. Its efforts to manufacture its own bike with which it planned to populate the supply side when expanding to a new location were postponed citing the manufacturer's capacity constraints. Spokes further pursued regulating activities trying to acquire a bike rental company, which would provide more high quality bike inventory. When the acquisition fell through, Spokes turned once more to community-amplifying activities, which provided access to relevant audiences and limited its involvement in cross-side interactions.

Similarly to Spokes, Ship-N-Go attempted to broaden its involvement over interactions through cherry picking instead of regulating activities. This shift was attempted after several failed attempts to accelerate transactions, including an attempt to partner with a pet transportation association which would certify Ship-N-Go drivers for transporting pets. In Ship-N-Go's case, cherry picking involved meeting one-on-one with a small number of drivers who were promised exclusive access to transporting requests. The founder of Ship-N-Go explained the purpose of these meetings:

> "My vision for what I want Ship-N-Go to be now is a small number of highly active drivers rather than a large number of drivers winning one contract a week or every two weeks. Really it is as simple as that. Highly engaged smaller number of drivers and then kind of growing on that: them being highly pleased with the product." (Ship-N-Go founder, personal interview, July 2015)

Pi Society also followed the second path of value creation. Its founder originally envisioned a marketplace for delivering tutoring services online and in real time. Pi Society began with categorizing activities that introduced broader categories within which math questions could be asked and answered. The founder initially populated some of these categories but efforts to attract others to do the same were met with little success. Pi Society then invested heavily in educating activities; the founder partnered with a national public TV channel and created education math videos, which were broadcast on national TV and spoke in various conferences and on TV about the importance of math education in lifting young people out of poverty. Educating activities generated bursts of increased traffic to the marketplace but very few interactions. In response, the founder began to create a tutoring association that would certify tutors and become a source of supply side participants for his marketplace. These efforts were interrupted by an opportunity for Pi Society to become a partner of an existing community. Specifically, the founder was invited to use Pi Society's technology as a journaling tool for individuals participating in an educational program that promoted science education through participation in makerspaces. Pi Society pursued this partnership and thus transitioned to community-amplifying activities. In doing so, the founder hoped to discover how makerspaces might become a source of supply-side participants, i.e. individuals interested in using their scientific knowledge to teach others. Similarly to Spokes and Gear Up cases, Pi Society shifted away from balancing activities, towards community amplifying activities that limited supply heterogeneity and lessened governance over interactions.

Last but not least, MaterialZ also appeared to follow the second path. Because it launched much later than the other cases in this study, MaterialZ was still at very early stages of its life at the time this manuscript was written. This may explain why data existed only on categorizing activities. For example, the founder worked on developing a platform technology whose functionality was based on a classification system for construction material widely used in the construction industry, as well as on categories used by DIY retailers that were familiar to homeowners. These categorizing activities aimed at simplifying search for material buyers and for maintaining some level of order and simplicity for material sellers. The continued study of the evolution of this marketplace will serve as a test case for confirming and further clarifying how this second process of value creation unfolds over time.

The case of the non-conforming case

The case of Buoyant does not appear to follow clearly either path of value creation. Although Buoyant initially pursued aggregating activities similar to cases in the first path, it did not transition to cherry picking or regulating activities. Instead, and almost concurrently, Buoyant pursued guaranteeing activities similar to cases following the second path, but made no other shifts up until the time this manuscript was completed. The uniqueness of Buoyant's path may be explained as follows. First, Buoyant offered its initial participants what few other cases did: insurance. Its focus on securing an insurance partner as soon as it launched suggests that in the context of renting very valuable assets such as yachts, insurance helps absorb the risks of non-conformity and creates enough value for both sides to transact within the marketplace. Other cases in this study also acknowledged insurance instruments to be an important mechanism for growth but a costly one given their limited resources. Buoyant did not have substantially more resources than other host firms at launch, but its founder appeared to have strong ties to actors who facilitated the creation of its insurance instrument. Regardless of how Buoyant was able to offer insurance earlier than other host firms, the key insight is that in when guaranteeing activities are costly to pursue, host firms attempt to either broaden

Figure 4.2: Temporal Patterns of Value Creation Activities In Early-Stage Peer-to-Peer Marketplaces

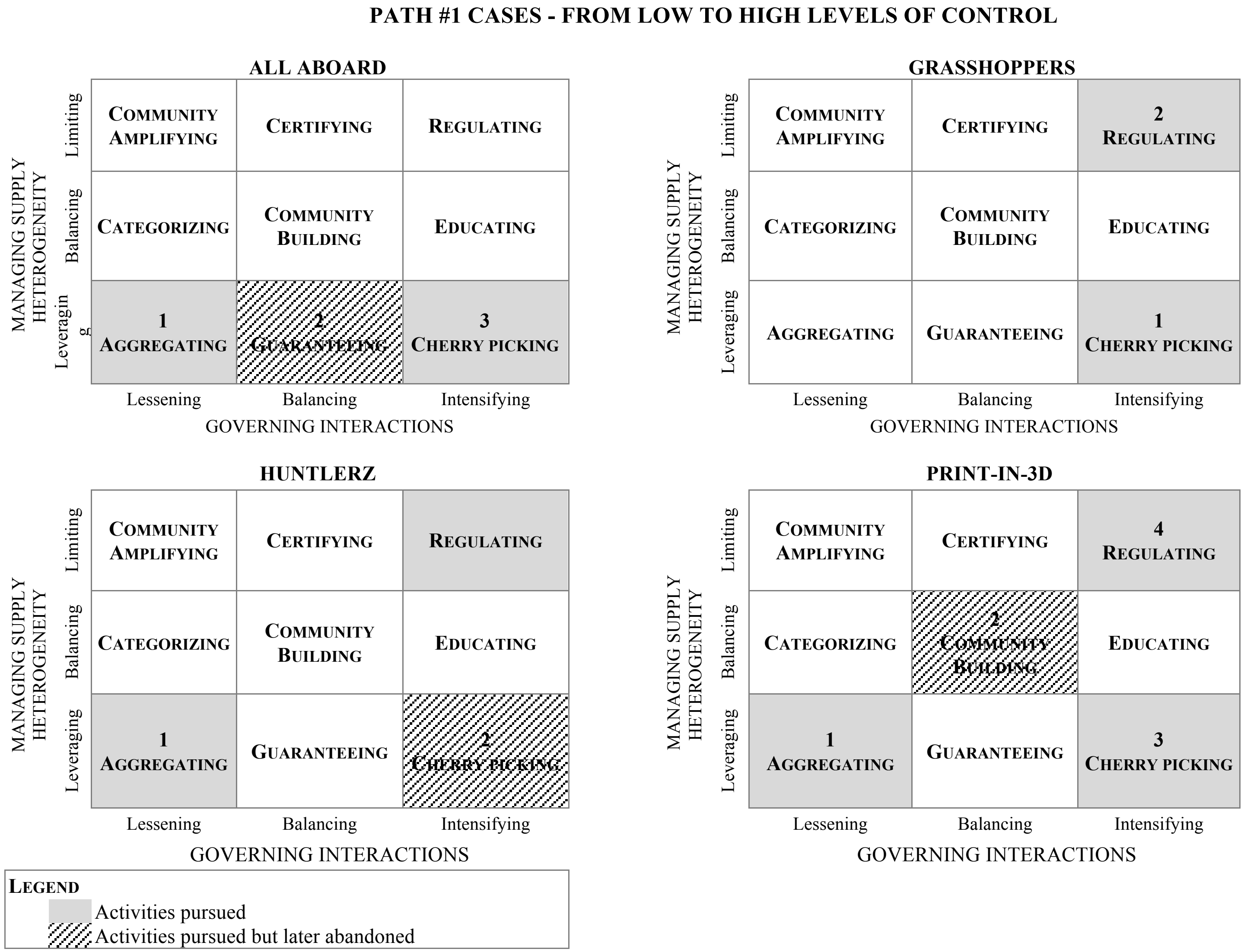


Figure 4.2: Temporal Patterns of Value Creation Activities In Early-Stage Peer-to-Peer Marketplaces (continued)

PATH #2 CASES - FROM BALANCING TO LOW LEVEL OF CONTROL

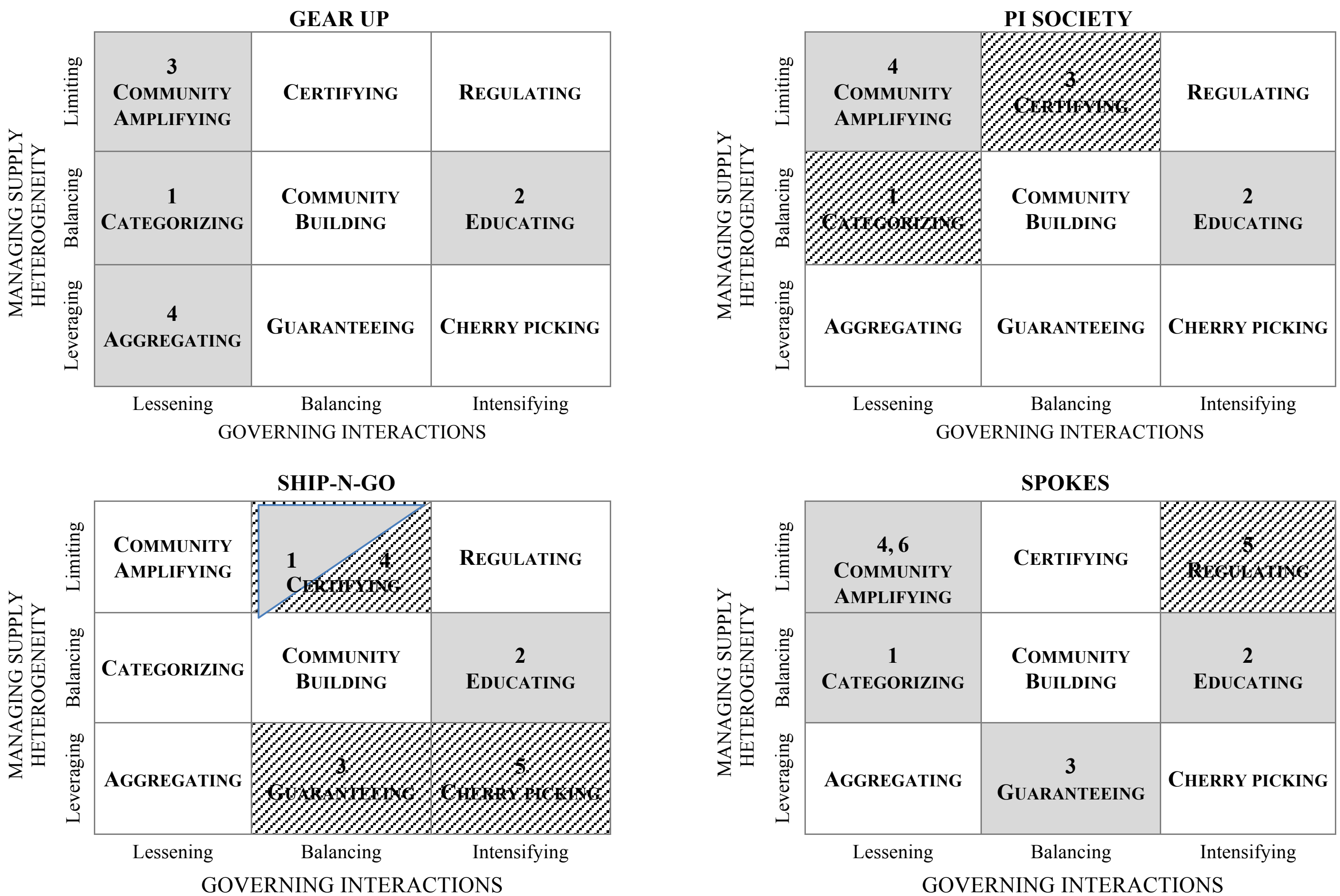


Figure 4.2: Temporal Patterns of Value Creation Activities In Early-Stage Peer-to-Peer Marketplaces (continued)

PATH #2 CASES (Continued)

MATERIALZ

MANAGING SUPPLY HETEROGENEITY

	Lessening	Balancing	Intensifying
Limiting	**COMMUNITY AMPLIFYING**	**CERTIFYING**	**REGULATING**
Balancing	**1 CATEGORIZING**	**COMMUNITY BUILDING**	**EDUCATING**
Leveraging	**AGGREGATING**	**GUARANTEEING**	**CHERRY PICKING**

GOVERNING INTERACTIONS

Figure 4.2: Temporal Patterns of Value Creation Activities Pursued In Early-Stage Peer-to-Peer Marketplaces (continued)

THE CASE OF THE NON-CONFORMING CASE

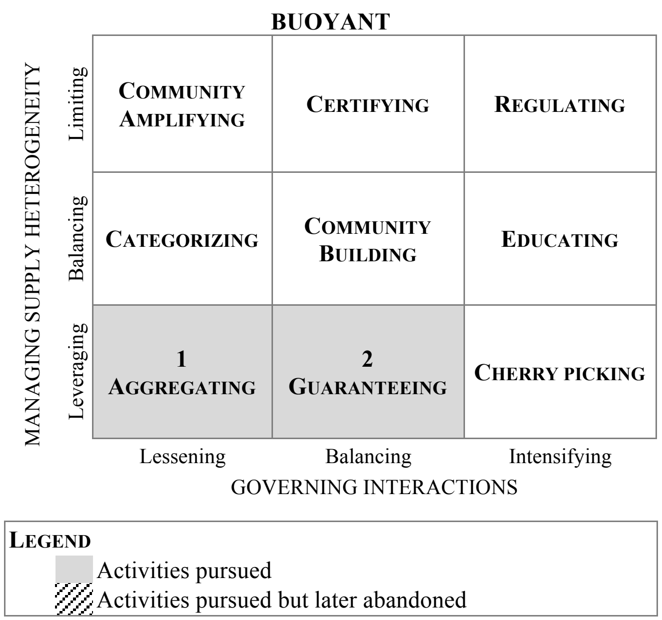


Table 4.6: Temporal Patterns of Value Creation Activities in Narrative Form

PATH 1: FROM LOWER TO HIGHER LEVELS OF CONTROL			
ALL ABOARD	**Aggregating =>** Allowed and invited both yacht owners and charter companies to participate on the supply side and anyone on the demand side regardless of their ability to operate a boat; allowed them to determine pricing, and customer service	**Guaranteeing =>** Searched for insurance partner that would protect yacht owners' property from damages albeit unsuccessfully; sought partnership with licensing associations for verifying renters' ability to operate a boat	**Cherry Picking** Matched incoming demand for renting specific yachts to specific charter companies
HUNTLERZ	**Aggregating =>** Allowed and invited all hunters and outfitters/land owners to participate	**Cherry Picking =>** Matched incoming demand for dove hunting to appropriate outfitters and land owners	**Regulating** Focused on developing trust and credibility with outfitters by providing them with a complete package of services for running their operations more efficiently
GRASSHOPPERS	**Cherry Picking =>** Fixed price of service at $22/yard and tried to recruit lawn care professionals. Ended up hiring and training inexperienced providers. On demand side, it focused on specific lots in specific neighborhoods.	**Regulating** Let go of 'in-house' crew and selected independent and experienced lawn care professionals. Kept price of service at $22/yard but gave providers the opportunity to service more yards per hour due to routing efficiencies.	

Table 4.6: Temporal Patterns of Value Creation Activities in Narrative Form (continued)

PRINT-IN-3D	**Aggregating =>** Allowed and invited anyone with a 3D printer to participate and any individual in need of a 3D printed part to place an order. Parties were given full autonomy over pricing and delivery options.	**Cherry Picking =>** Allowed demand-side to submit orders to the marketplace as well as to specific printers. Routed incoming orders to specific 3D-printer owners first. If no match was found, the order made available for any other printer owner to fulfill.	**Regulating** Selected 3D-pritner owners who had consistently proved reliable to fulfill the bulk of orders. Took control of pricing and standardizes cost estimates through software.	
PATH 2: FROM BALANCED TO LOWER LEVELS OF CONTROL				
GEAR UP	**Categorizing =>** Selected retailers and specific individuals with whom the founding team had existing relationships to populate the supply side.	**Educating =>** Reviewed each listing and provided sellers with pricing suggestions; introduced concierge service to minimize bike owners' effort to list their equipment for sale	**Community => Amplifying** Targeted, attended and sponsored biking events, e.g. triathlons, weekly cyclist meet-ups, to find participants most interested in sports	**Aggregating** Introduced more product categories and opened participation to two more cited; listed inventory available on bike retailers' sites as if it were its own

Table 4.6: Temporal Patterns of Value Creation Activities in Narrative Form (continued)

PI SOCIETY	**Categorizing =>** Created broad topics within which math questions could be asked and answered; invited teachers to contribute and any individual to ask questions; founder first populated marketplace with some questions and answers	**Educating =>** Created educational videos about the value of math education in lifting people out of poverty	**Certifying =>** Sought to create an association for tutors and a tutoring certification	**Community => Amplifying** Partnered with an educational initiative to promote participation in makerspaces and offered its technology as a journaling and knowledge exchange tool for program participants	
SHIP-N-GO	**Certifying =>** Provided drivers with a firm-specific certification that acknowledged them as 'level 3' certified if their background check was 'clean'	**Educating =>** Created an e-book for drivers on how to win bids and behave professionally; wrote blog posts with shipping-related advice and information	**Guaranteeing =>** Searched for insurance partners that would provide shippers with protection for any valuable items shipped	**Certifying =>** Entered in discussion with an international association that could certify Ship-N-Go drivers to transport pets	**Cherry Picking** Met in person with specific drivers to enlist them in a select group of drivers with exclusive access to shipping gigs

Table 4.6: Temporal Patterns of Value Creation Activities in Narrative Form (continued)

SPOKES	**Categorizing =>**	**Educating =>**	**Guaranteeing =>**	**Community => Amplifying**	**Regulating**
	Introduced bike categories within which bike owners could list their bikes; allowed anyone to participate from any country in the world but focused recruitment on one city first	Reached out to bike owners with personalized recommendations on how they could list their bikes more appropriately and win more bids	Introduced a 'guarantee' for bike owners that protected their property if a bike renter could not pay for it	Sponsored bike valets and provided them with bikes and staff to run their operations during major conferences	Designed its own proprietary bike and sought to manufacture it in large numbers and lease the bikes to individuals interested in running their own small bike rental businesses in cities where Spokes planned to expand
MATERIALZ	**Categorizing** Based functionality of its technology on industry-wide classification system for construction material as well as on categories used by DIY retailers that were familiar to home owners				

their involvement through cherry picking and regulating activities, or balance their involvement with participant autonomy through certifying activities. All of these activities help absorb some of the risks of non-conformity that are likely to deter participation

Summary. In sum, four cases followed a path of value creations that entailed transitions in activities from one end of the control continuum to the other, whereas five cases followed a second path that stayed with balancing activities before transitioning to lowers levels of control. Shifts in the first path appeared driven by host firms' desire to increasingly control the quality of transaction outcomes but only after a sufficient number of participants had joined the marketplace. In other words, host firms following the first path appeared initially concerned about attracting large numbers of participants, regardless of their likelihood to conform, and winnowing the most relevant ones once the marketplace had satisfactorily scaled. The challenge of promoting and monitoring conformity throughout this process rested with host firms. In contrast, shifts in the second path appeared driven by host firms' desire to increase the number of participants but only after relevant participants had joined the marketplace, and high quality interactions had occurred. In this second path, host firms were initially more interested in recruiting relevant participants, which often came at the cost of relatively slow growth. Their objective was initially to facilitate optimal matches that left both sides satisfied than with generating many and potentially suboptimal matches. Yet, over time, host firms lessened control over the marketplace so as to accelerate growth. They invited more heterogeneous participants and/or lessened control over their interactions. The initial conformity host firms were able to promote through their earlier efforts served as evidence of successful participation and operated as a participant-driven control mechanisms for new participants to maintain acceptable levels of conformity.

CHAPTER 5: DISCUSSION OF FINDINGS

Prior research has studied two-sided marketplaces through a transactional lens (Gawer, 2014), focusing on how price structures incentivize potential participants to join the marketplace, and continue participating over time (Armstrong 2006; Caillaud and Jullien 2003; Evans, 2003; Parker and van Alstyne 2005, Rochet and Tirole 2003b; 2006). Moreover, it primarily studies host firms through formal economic models and in limited cases, studies well-established two-sided marketplaces, which already have significant levels of resources including participants. This literature overlooks recruitment mechanisms and strategies for building two-sided marketplaces other than pricing, and provides limited evidence and theory about the early-stages and the evolution of two-sided marketplaces (Gawer, 2014). To address these oversights, I conducted an inductive study of early-stage strategies in two sided marketplaces. Findings from pilot data revealed unique challenges faced by a particular and under-researched type of two-sided marketplace, the peer-to-peer marketplace. The main part of this research tracked the evolution of ten peer-to-peer marketplaces focusing on activities for recruiting initial participants, and coordinating their interactions.

Findings from this study suggest that recruiting initial participants and inducing their interactions is more complex than the common economic argument of subsidizing the costs of participation. Consistent with prevailing arguments in prior research, this research also finds that giving participants opportunities to earn income and subsidizing their cost of participation creates some incentive for them to join the marketplace even when a critical mass of other participants does not yet exist. However, this study moves beyond a transactional view of marketplaces and questions that financial rewards and subsidization are adequate value creation and recruitment mechanisms. Findings provide evidence that extends prior research on two-sided marketplaces. Specifically, host firms pursue a number of value-creating activities that signal to initial participants a number of non-transactional benefits such as providing them with new channels to pursue their preferred activities (e.g. competing in triathlons, biking while traveling), connect with individuals of similar interests and values (e.g. outdoor enthusiasts, math and science scholars), increase their productivity (e.g. spending less time traveling between lawn care jobs), and publicly showcase their expertise and knowledge. These non-financial incentives and rewards, combined with financial ones, paint a more complete picture of what host firms actually do to build two-sided marketplaces.

This study extends our knowledge of strategies in two sided marketplaces in four ways. First, I show that host firms seek to create value by encouraging participant conformity with appropriate behaviors. Conformity implies predictability in behavior and reduced risk. As a result, host firms must find ways to signal to potential participants that conformity is fostered, and non-conformity is monitored and penalized. Although host firms promise potential participants an eventually large enough network through which transactions will be made more efficient, early on, the value they create centers on their ability to promote participant conformity with appropriate behaviors and project to potential participants that non-conformity is effectively monitored.

Second, I show that host firms foster conformity by exercising control on two dimensions: participant heterogeneity and cross-side interactions. Control over participant heterogeneity in the peer-to-peer context is initially focused on the supply side while the demand side experiences little to no control. Control over heterogeneity seeks to promote conformity on both transaction-relevant dimensions (e.g. accurate and complete descriptions of products and services) and identity-relevant dimensions (e.g. use of language, and friendliness) (see table 4.2). Some cases enforce strict control over participant heterogeneity and thus limit it; others are open to any willing participants and thus leverage it; and other balance heterogeneity with homogeneity.

Participant heterogeneity has been found to challenge firms' ability to generate network effects (Gupta, Jain & Sawhney, 1999) or strengthen existing network effects (Zhu & Iansiti, 2012). By definition, heterogeneity challenges efforts to promote and monitor uniformity in behavior. Prior studies on two-sided marketplaces have considered heterogeneity on the supply side only in technical terms, and on the demand side as the function of the utility consumers derive when transacting in a particular marketplace (e.g. Armstrong and Wright, 2007; Sun & Tse, 2007). Even though prior research has hinted at the importance of considering heterogeneous consumer preferences in marketplace strategy (Zhu and Iansiti, 2012) it has not examined whether and how participant heterogeneity might be intentionally managed to facilitate marketplace growth. One of the main contributions of this study is the evidence it provides on how specifically host firms intentionally manage the level of participant heterogeneity in their marketplace so as to generate network effects.

On a second dimension of control, host firms govern cross-side interactions to promote and monitor conformity. They become involved in various degrees in how when and under what terms the two sides interact. Some cases intensify governance and thus take control over the key terms of interaction; others lessen it and thus allow participants to find, select and evaluate transacting parties with little interferences; and others balance governance with participant autonomy. Prior research has discussed governance mechanisms such as exclusivity terms (Armstrong & Wright, 2007; Hagiu & Lee, 2011) and technological standards (Wareham et al, 2014). In the peer-to-peer context however, where supply participants do not have to develop complementary technological products to participate, governance is concerned with influencing and monitoring how participants behave and treat each other. Conformity in this context is desirable so as to ensure that participants behave appropriately and create value for each other. The key insight here is that host firms govern cross-side interactions either directly or indirectly, i.e. by integrating participants and information about their behavior in governance efforts. Moreover, host firms initially choose to govern interactions to different degrees. Some intensify governance and preempt the risks of non-conformity; others lessen governance and provide participants with tools to select appropriate transacting parties; and others balance governance with participant autonomy, controlling some aspects of the transaction but allowing participants to select a transacting party.

Third, this research extends existing knowledge on two-sided marketplaces by considering the interactions between the aforementioned dimensions of control and their implications for value creation. The proposed typology of nine-value creating activities (figure 4.1) provides evidence of the broad repertoire of activities firms in two-sided markets utilize for growth.

Fourth, patterns in activities pursued over time provide evidence and contribute to new theory about the process of early-stage value creation in two-sided marketplaces (figure 4.2). The two alternative but "equifinal" paths of value creation (figure 5.1) cast new light on the tradeoffs between two different approaches to designing a two-sided marketplace. These paths capture the tension between increasing the number of participants or the volume of transactions and maintaining the relevance of participants and the quality of their interactions. The first path suggests that openness to heterogeneous participants early on will eventually require more direct oversight over participants and their interactions so as to ensure their conformity. In contrast, restricting heterogeneity early on lessens the need for direct firm oversight but eventually requires lessening that control and inviting more heterogeneous participants so as to accelerate the growth of the marketplace. Both approaches leverage access to initial participants as growth resources albeit in different ways. The first harnesses the opportunities of heterogeneity whereas the second harnesses the opportunities of homogeneity to recruit initial participants.

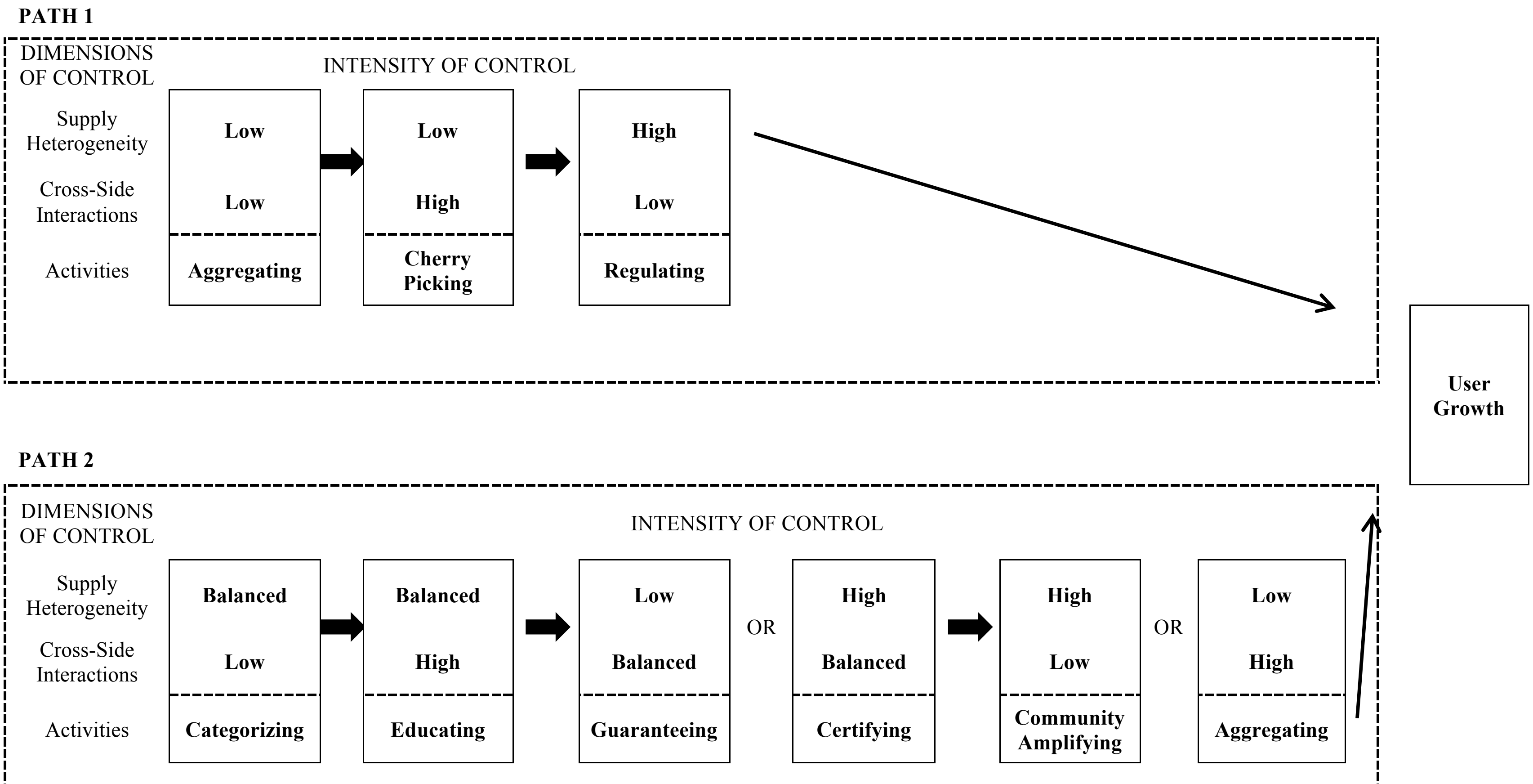
Lastly, these paths present evidence of how host firms not only recruit but also try to sustain participation over time. Findings from Cennamo and Santalo's (2013) work suggest that strategies for recruiting versus sustaining participation might conflict as the marketplace grows. Specifically, introducing product variety conflicts with strategies for securing exclusivity contracts, and decreases complementors' willingness to develop new products as the marketplace becomes more crowded (Cennamo & Santalo, 2013). In the peer-to-peer context, certain host firms appear more concerned about 'crowding out' effects than others, and intentionally manage the heterogeneity of their participants either by blocking the participation of those unlikely to conform ex ante or by winnowing out poor performers ex post. Together, these two paths advance new theory about alternative paths of value creation in peer-to-peer marketplaces.

Contribution to Theories of Resource Orchestration

In theorizing about the strategies that consider the role of participants in early-stage value creation in two-sided marketplaces, this study conceptualizes 'leverage' in resource terms. Leverage, defined as "exercising an influence that is disproportionate to one's size" (Thomas et al, 2014: 206), is a key concept in the literature on two-sided marketplaces. A host firm's source of leverage is typically thought to be architectural, that is, to stem from "its product and service architecture" that becomes "a direct driver of value creation and competitive advantage, as it provides a mechanism to achieve greater outputs from the same level of inputs" (Thomas et al, 2014: 206). Architectural leverage, for example, is manifested in attracting complementors, who build compatible products and increase the value of the underlying technology without the host firm investing additional resources (Boudreau & Jeppesen, 2014).

In peer-to-peer marketplaces, architectural leverage is not a key aspect of value creation. Instead, leverage comes from host firms having not only access to participants but also knowledge about participants' preferences, and behaviors. Leveraging participants and their contributions as growth resources stands in contrast to the prevailing view in the strategy literature, which considers valuable resources those that are owned and controlled directly by the firm (Barney, 1991) and accumulated internally

Figure 5.1: Alternative Paths for Promoting and Monitoring Participant Conformity in Peer-to-Peer Marketplaces



(Bowman & Ambrosini, 2000; Dierickx & Cool, 1989; Sirmon et al 2007; 2011). According to Dierickx and Cool (1989), strategic resources are the cumulative result of adhering to a set of consistent policies over a period of time. Bowman and Ambrosini add that "new use value is created by the actions of organizational members, who combine to transform the use values that the organization has acquired" (Bowman & Ambrosini, 2000: 5). In other words, valuable resources are built inside the firm out of the purview of customers or other external actors.

Until Sirmon et al's (2007; 2011) work on research orchestration, no cohesive framework existed about how specifically firms transform resources into valuable ones. Sirmon et al (2007; 2011) developed a framework for well-established firms that theorizes about three resources development processes: a) structuring resources, b) bundling resources into capabilities, and c) leveraging capabilities to appropriate value as well as test and refine capabilities. These processes explain how firms accumulate or develop valuable resources inside firm boundaries. Moreover, they are based on the assumption that customer preferences can be known only after firms have already deployed their capabilities in product markets. In contrast to Sirmon et al's (2007; 2011) assumptions, I present evidence and develop new theory about the process of resource orchestration in nascent and resource-constrained firms. Although consumers and other external stakeholders lie outside firm boundaries and beyond the direct control or ownership of host firms (Kraaijenbrink, Spender, & Groen, 2010; Zander & Zander, 2005), in peer-to-peer contexts, external stakeholders provide key resources, which when integrated with internal ones, contribute to both value creation as well as new resource development. For example, All Aboard's customer service archives reveal efforts to solicit extensive feedback from initial yacht owners so as to improve the very basic functionality of All Aboard's initial website versions. All Aboard's conversations with potential customers sought to gain insights about which resources and capabilities had to be further developed so that they attracted more participants (e.g. functionality that allowed owners to list their boats in multiple geographic locations). Similarly, several other cases not only considered but invested significant resources in understanding the preferences, motivations, and behaviors of marketplace participants (e.g. Spokes collaborated with an economist and carried out an extensive study on participant behavior). They then used this knowledge to improve the functionality of their technology including algorithms and user interface design, fee structures, marketing effectiveness and more broadly, their ability to elicit and sustain cross-side interactions.

In sum, although prevailing views posit that value is created through actions of organizational members once resources are available, new technologies and new business models enable the production of value across firm boundaries. In these contexts, firms create and capture value by purposefully orchestrating resources both internally and externally, i.e. by determining how all of these actors come together, and interact appropriately. At the same time, this orchestration process adjusts and evolves based on insights that emerge from participant behavior. Knowing how resources can be built, especially in contexts where they are scarce, provides guidance about how firms can access, create, and use resources to create value. The proposed framework provides initial guidance for identifying strategies and supporting activities that are observable, measureable, and replicable.

Contributions to New Forms of Organizing

Puranam and colleagues (2013) advocate for “new theories of organizing that explain and indeed predict the emergence of new forms” (Puranam, Alexy, & Reitzig, 2014: 163). New forms of organizing, Puranam et al (2014) suggest, entail novel solutions to the traditional problems of organizing such as task division, task allocation, reward provision, and information provision. Alternatively, Felin and Zenger (2014) suggest that different approaches to organizing vary based on the communication channels firms use to induce the voluntary contribution of external stakeholder, the incentives offered to employees to search for solutions, and the assignment of property rights over new knowledge. Taken together, these arguments suggest that explaining and predicting how firms organize and compete under a more ‘open’ paradigm involves alternative governance mechanisms. This study generates insights about how firms organize their efforts to solve core organizing issues such as division of labor and integration of effort. In particular cases, host firms carry key activities whereas in others, host firms share the load with marketplace participants. Peer-to-peer marketplaces are a context particularly fit for studying new forms of organizing such as the mechanisms for dividing and allocating production tasks among organizational members and consumer, providing financial, reputational and identity-enhancing rewards, and managing information flows between the two sides.

Implications for Entrepreneurs and Managers

This study also presents both high level and tactical evidence useful for entrepreneurs trying to spark the interest of initial marketplace participants, and resolve the chicken-and-egg problem inherent in two-sided markets. The proposed strategies and process models provide guidance about concurrently considering how to manage types of participants and their interactions. These two forms of control highlight the importance of considering not only consumers' willingness to pay, but also their willingness to behave in particular ways.

This research also informs entrepreneurs and managers who may not be operating in two-sided markets but who are looking to induce and sustain collaborations with consumers. As hardware and software technologies enable increasing levels of collaboration and connectivity, more firms are likely to seek the contributions of external stakeholders such as technology users, user communities, customers, and end consumers throughout the value chain (Priem, 2007; Tantalo & Priem, 2016; Wiertz & Ruyter, 2007). Fostering these interactions will continue to be an important source of opportunity and innovation that allows firms to chart alternative paths to competitive advantage.

Future Directions

Future research may examine the performance implications of different processes of value creation and propose a prescriptive model of value creation in two-sided marketplaces. For example, when control is lessened over interactions and information is allowed to follow freely between supply-side and demand-side participants, the question is raised about which interactions convert to transactions and which do not.

It is important to note that in particular peer-to-peer marketplaces, participants were likely to participate on both sides (e.g. Spokes, Gear Up). In the case of Spokes, individuals who rented bikes often listed their bikes for rental. Similarly, individuals participating in the Gear Up marketplace were likely to sell *and* purchase equipment. In these cases, host firms were able to reach both audiences through the same activities and concurrently grow both sides of their marketplace. Yet, only a portion of participants took on both roles (usually between 20-30%) and firms had no ex ante knowledge of who would participate on both sides. Despite participants taking on both roles, host firms managed each side separately precisely because they could not predict who exactly would participate on both sides. Future research may examine how participants' duality of roles facilitates or hinders the growth of the marketplace.

Other scholars may want to explore further the often-discussed concept of 'community' in the long-term performance of two-sided marketplaces. The proposed community building strategies in this study were referenced in interviews but not directly observed. Future studies may choose to study how community building occurs, or how it enables and becomes enabled by other strategies.

Lastly, the increasing attention on firms in the 'sharing economy' and its implications for government regulation presents an additional opportunity for research. For example, a recent ruling on a class action lawsuit brought against Uber by Uber drivers allowed Uber to keep its drivers as independent contractors but required the company to pay $100 million in damages to its drivers, and create an association for drivers so that they can bring their grievances collectively to Uber. In Austin, Texas, a law soon to be brought to vote may require Uber and Lyft to collect fingerprints for all drivers. Future research may examine how different institutional environments across US states, and across different countries facilitate or constrain the growth of peer-to-peer marketplaces.

CHAPTER 6: CONCLUSION

With this study, I sought to address the lack of theory and evidence on the process of value creation in the absence of a critical mass of marketplace participants in two0sded marketplaces. Findings emerging from an inductive study of ten peer-to-peer marketplaces provide evidence and build new theory of the activities host firms pursue to create value, recruit initial participants and manage their interactions. A longitudinal examination of activities pursued is used to develop theory about two alternative but equifinal processes of value creation.

This study's findings contribute to the literature on two-sided marketplaces by applying a behavioral lens to the study of marketplace strategy. More specifically, the emergent typology of nine value-creating activities, and two alternative paths to value creation generate new theory about value creation as a process of exercising different types and levels of control sometimes directly and sometimes indirectly, in collaboration with marketplace participants.

Emergent theory extends resource orchestration theory to entrepreneurial contexts and identifies theoretically important differences between resource orchestration in established versus entrepreneurial firms. Prevailing views in strategy research assume that valuable resources are owned and directly controlled and that resources are developed and imbued with value within firm boundaries. In the context of peer-to-peer marketplaces, however, control does not necessarily involve ownership or direct oversight but is primarily concerned with incentivizing, influencing, monitoring, and rewarding marketplace participants for their conformity to appropriate behaviors. Value creation in peer-to-peer marketplaces also has implications for new forms of organizing. The dominant view of firms dividing, coordinating and integrating effort of organizational members within firms boundaries (Puranam et al, 2014) is called into question in contexts such as peer-to-peer marketplaces where external-to-the-firm actors voluntarily assume activities typically controlled and carried out by host firms, and where firms coordinate external stakeholders and integrate their efforts with those of organizational members.

Appendix

Interview Guide

Date: __________________
Location: _______________
Time: Begin: _____
End: _____
Interviewer: _____________
Informants: _____________

Introduction (5 minutes)

1. Background of researcher
2. Research purpose: I am trying to understand how firms build online communities in two-sided markets.
3. This research program consists of:
   a) Interview (60-90 minutes)
   b) Follow-up telephone and/or email conversations

Consent and Confidentiality (2 minutes)

1. Present and explain consent form
2. Offer and explain confidentiality and privacy protection procedures

Main Phase of Interview (45 minutes)

1. <u>Idea development, motivation, and founder background</u>
   - How did your business idea come about?
   - Why did you want to create this marketplace?
   - What was your prior professional experience and education?

2. <u>Launch and prototype development milestones</u>
   - When did you incorporate?
   - Were you part of an incubator or accelerator?
   - When did you launch the beta site?
   - When did you launch, if at all, a mobile application?
   - Who was part of the founding team at launch?
   - When and with whom did your develop the beta site?

3. <u>Business and technology evolution</u>
   - What key milestones (e.g. first customers, funding, prototype development) did you achieve, and when did they occur?
   - What specific features does your technology currently have?

- What technology features have you added and removed from earlier versions? Why?
    - What changes have you to made to user interface design? Why?
    - How have you decided to make those changes?
- What technology features are currently in progress? How will they enable the growth of the marketplace, if at all?
- What kinds of features or versions of your technology do you envision creating in the future?
- How does payment work in your marketplace? How was this changed over time?
    - What systems do you have in place to process payments?
    - What do you require users to do before buying or selling an item?

4. Initial Participant Recruitment
    - How have you been able to attract initial marketplace participants? Could you provide examples of specific activities or actions?
    - Who are your current participants? Who are the ideal participants?
    - Which efforts have been the most successful in acquiring new registrants? Which ones have been the least successful?
    - What challenges have you encountered in recruiting initial participants? How have you solved them?
    - What has been the most and least successful approach to getting participants to transact? How have you accomplished it?
        - What kinds of incentives have you given to users? What has worked and what hasn't?
    - What kind of metrics, if any at all, do you use or want to use in the future to track progress in your efforts to build recruit more participants?
    - Is user attrition a concern? How do you deal with it, if at all? How do you make sure participants return and continue to transact within your marketplace
    - What do you need to further attract more participants?
    - What role, if any at all, have participants played in how you go about growing your marketplace?
        - What participant demands have you taken into account and/or incorporated in your offering and what demands have you ignored or decided not to pursue? Why or why not?
    - What have you learned either about running your business or marketplace participants that has been surprising or unexpected?
    - What are the most important issues you and your team are currently trying to solve?
    - What challenges keep you up at night?

5. Resource development and evolution
    - Who was on the founding team?

- How has your team changed over time?
- What resources, including funding, have you acquired since you launched?
    - Was kind of funding have you received (e.g., seed, round A etc) and from which investors?
- What are the most important resources you need right now but do not have?
- How much revenue or how many transactions have you generated so far?
- How many participants do you have on the supply-side and on the demand-side?

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